

2007



King County

Climate Report

2007 King County Climate Report
February 2008

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Executive Summary

This 2007 King County Climate Report is the first annual report on implementation of the 2007 King County Climate Plan, which was published in February 2007. This report is being submitted on February 1, 2008, as required by Executive Orders on Global Warming Preparedness PUT 7-5 through 7-8 and King County Council Motion 12362 (described in **Section 1**). This document provides a progress report of King County government actions to reduce greenhouse gas emissions and to anticipate and adapt to projected climate change impacts, based on best current knowledge. It reflects a cross-departmental collaboration that builds on over 15 years of efforts in King County to address the causes of climate change and to prepare for regional climate change impacts. As described in Section 1 of this report and the “Reasons for Optimism” section of the King County Climate Plan, this collaboration is forward-looking, ambitious and optimistic, based on the conviction that climate change is both a problem and an opportunity for leadership, public health improvements, and economic prosperity. This approach has been reinforced by a noticeable increase in public knowledge and awareness about climate change over the past year.

“Scientific Advances and Developments in 2007” (**Section 2**) provides a brief overview of new information on greenhouse gas emissions and climate change impacts, building on the “Global Climate Change,” “Greenhouse Gas Emissions” and “Impacts to the Pacific Northwest” sections of the 2007 King County Climate Plan. Over the past year, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report has indicated with great certainty (>90 percent) that human emissions of greenhouse gases are driving atmospheric concentrations of those gases that are disrupting global climate patterns. Globally, emissions are rising, and the transportation sector remains the greatest source of greenhouse gas emissions for Washington State and King County.

Globally, the IPCC report installments have provided more detail than ever before that warmer air and water worldwide are leading to a cascade of other climate changes, including but not limited to sea level rise, loss of sea and land-based ice, decreases in snowpack and glaciers, and impacts to human health. Climate change impacts are projected to be especially grave in the poorest areas of the world and even in poor areas of wealthy nations. “Downscaled” information from the Climate Impacts Group at the University of Washington has helped King County decision-makers to develop planning assumptions about sea level rise, flooding, water supply and other trends in regional climate change. King County is also learning more about the impacts of climate change to human health.

In 2007, it became increasingly clear that King County actions to reduce greenhouse gas emissions and prepare for climate change impacts are a critical part of the fabric of regional, national and global action to reduce the future harms of climate change to people, property and natural resources. Although the U.S. federal government has not adopted comprehensive legislation to mandate national reduction of greenhouse gas emissions and to prepare our regions for the worst impacts of climate change, meaningful action continues to take place at the state, regional and local government levels. While greenhouse gas emissions produced by King County operations and

community constitute only small percentages of national and global quantities, the King County government and region have shown throughout 2007 that we can and will pioneer the policies, practices and investments to inform climate change planning efforts worldwide.

“Actions and Emerging Issues” (**Section 3**) provides information on: actions and accomplishments by the King County Climate Team and King County departments in support of the goals of the King County Climate Plan; actions planned for 2008 and beyond; and emerging issues that could shape King County’s ability to reduce greenhouse gas emissions and prepare for climate change impacts in the region. This section is further divided into a Mitigation section and an Adaptation section.

The Mitigation section of this report (**Section 3-A**) provides information on how King County continues to take steps toward meeting the goal of climate stabilization, or 80% reduction of greenhouse gas emission below today’s levels by 2050. The actions taken in 2007 and planned for 2008 are communicated in this report according to the “strategic focus areas” identified by the 2007 King County Climate Plan: greenhouse gas accountability and limits; climate-friendly transportation choices; energy conservation, efficiency, clean energy and clean fuels; and land use, building design, and materials. Efforts are also communicated by level of action: operational, regional, state and national. Along these lines, many extraordinary efforts continued and were launched in 2007 to reduce greenhouse gas emissions, including:

Greenhouse Gas Accountability and Limits

- Completion of the county’s operational year 2000 baseline inventory for the Chicago Climate Exchange, in which it was the first county and bus transit agency member
- Update and refinement of the county’s existing greenhouse gas emissions inventory
- Addition of greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county’s own developments
- Development of a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas emissions

Climate-Friendly Transportation Choices

- Implementation of over 56,000 new hours of service as part of the Transit Now! Initiative, which is connecting high-density communities to new streamlined bus routes
- Extensive promotion of public transit use, through such programs as InMotion and Partners in Transit and single events such as Earth Day
- Development of tools in the Healthscape program to measure the benefits of non-motorized transportation projects, such as avoided greenhouse gas emissions, walkability and increased public health
- Designation as an Urban Partner of the United States Department of Transportation and potential receipt of a \$140 million grant to implement a tolling

pilot project on SR-520, which is expected to reduce greenhouse gas emissions by eliminating unnecessary trips and encouraging transit

- Collaboration with regional, state and federal government entities on such coordinated strategies as greenhouse gas emissions modeling of major transportation projects and tolling
- Active role on Washington State Climate Advisory Team and staff participation in the Transportation Working Group and development of associated recommendations

Land Use, Building Design and Materials

- Production of the draft 2008 Comprehensive Plan Update, which includes text and policies that support climate change mitigation and adaptation
- Update of the county's Green Building Ordinance and progress on county projects that employed the highest standards of green building
- Publication of a GreenTools CD-ROM of training tools and case studies for other local governments to use in developing municipal green building programs
- Enhancements to the Puget Sound Fresh program, such as the addition of the "Eat Local Thanksgiving" initiative, to reduce greenhouse gas emissions from the freight transportation of non-local food

Energy Conservation, Efficiency, Clean Energy and Clean Fuels

- Announcement by King County Department of Transportation of a landmark contract with an option to purchase 500 additional hybrid buses, to complement the county's existing hybrid fleet of 213
- Addition of plug-in hybrid-electric vehicles and a cutting-edge heavy-duty hybrid truck into King County's fleet
- Hosting of the "Clean Vehicles Now!" conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today
- Use of B20 (20 percent blended biofuel) across all appropriate vehicles in the county's fleet
- Establishment by King County Metro Transit of a first-of-its-kind agreement to purchase 2 million gallons of biofuel for use in buses, to be made from canola grown on farms in Yakima County, Washington, which has been fertilized with biosolids from King County's wastewater treatment operations
- Approval of a contract for conversion of methane from the King County Solid Waste Division landfill to usable energy

At the same time, preparing the King County community for climate change impacts is a new challenge that King County is undertaking with innovative and highly practical thinking. King County continues to partner with national leaders in climate science, such as the Climate Impacts Group at the University of Washington, as well as develop scientific and technical capacity in King County departments. As a result, the regular climate information updates that King County decision-makers and planners receive put King County in an excellent position to make long-term infrastructure decisions that will make our region more resilient.

The Adaptation section of this report (**Section 3-B**) provides information on how King County is preparing for climate change impacts that can be reasonably expected in the future. The actions taken in 2007 and planned for 2008 are communicated in this report according to the “strategic focus areas” identified by the 2007 King County Climate Plan: climate science; public health, safety and emergency preparedness; surface water management, freshwater quality and water supply; land use, buildings and transportation infrastructure; economic impacts; and biodiversity and ecosystems. Along these lines, practical efforts continued and were launched in 2007, including:

Climate Science

- Collaboration with the University of Washington on development of reasonable assumptions about climate change impacts for departments and divisions responsible for long-term infrastructure planning
- Publication of *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, which is being used to guide and standardize the process of planning for climate change impacts across departments and divisions

Public Health, Safety and Emergency Preparedness and Economic Impacts

- Creation and adoption of the King County Flood Control Zone District, consistent with the King County Flood Hazard Management Plan, to rebuild the regional levee system and consequently protect public health, safety and property from more intense and frequent winter floods that the region is projected to experience in the future
- Support to King County residents and businesses, such as farms, affected by recent flooding
- Continued collaboration with Washington State University on public outreach about climate change impacts
- Participation in regional dialogue about how to prepare for intense storm events
- Research on issues of how climate change will affect already disadvantaged communities in the region

Surface Water Management, Freshwater Quality and Water Supply

- Active staff participation in the Washington Climate Advisory Team's Preparedness and Adaptation Working Group, especially in the areas of public health and water supply planning, and development of associated recommendations
- Co-sponsorship with the State of Washington on a reclaimed water conference, completion of a reclaimed water feasibility study, and initiation of a Reclaimed Water Comprehensive Plan
- Support of the Puget Sound Partnership, the U.S. Environmental Protection Agency and the international Pacific Salmon Commission on consideration of the impacts of climate change to regional water supply, and continued participation in the Regional Water Supply Planning Process

Land Use, Buildings and Transportation Infrastructure

- Incorporation of climate change impacts and preparedness considerations into the 2008 public review draft of the King County Comprehensive Plan

Biodiversity and Ecosystems

- Production of research and a report on the state of biodiversity in King County

These efforts to reduce greenhouse gas emissions and prepare for climate change impacts are extensive. But we can and must be more ambitious. Bold planning and investments in these areas -- including expansion and promotion of public transit, greenhouse gas accounting and climate change preparedness in capital projects, and expansion of green building practices -- are the first critical steps to significant greenhouse gas emissions reduction. To reduce greenhouse gas emissions we need to change our travel habits, reduce our dependence on cars, and build cleaner infrastructure. To prepare for the future we must remain aware of the changing state of knowledge about climate change impacts to the region.

In 2008, King County will seek to continue its leadership as a model of climate action planning for other local and regional governments worldwide. Actions planned for 2008 include:

- Refinement of the county's greenhouse gas emissions inventories and SEPA emissions worksheet, as well as continued development of proposed mitigation thresholds for SEPA-reviewed projects
- Launch of a "Green Your Commute" initiative for employees, to increase workplace efficiencies and develop new arrangements in support of reducing greenhouse gas emissions from employee transportation
- Continued collaboration with other governments, universities and the private sector on issues such as greenhouse gas emissions modeling for regional projects, reduction of vehicle miles traveled, encouragement of electrified transportation, broader establishment of fueling infrastructure for clean vehicles, continued development of a regional market for clean vehicles, and improved evaluation of landfill sequestration of greenhouse gas emissions
- Continued work on ways to develop "green collar" jobs in King County government that help meet the county's climate change policy goals
- Development with the Puget Sound Regional Green Fleet Initiative of a "green fleet standard" intended to help guide clean vehicle purchases by municipal governments
- Continued contribution by King County technical and scientific experts to local, regional and state analysis of climate change
- Continued support of statewide dialogue on climate change mitigation and adaptation strategies
- Advocacy for establishment of sound United States federal climate policy as soon as possible, through such venues as the Cool Counties Initiative
- Further institutionalization of climate change mitigation and adaptation planning across county departments, through the Climate Team and its workgroups

The King County Climate Team has captured the experiences of implementing these actions, in tools and climate action planning templates for other local and regional governments across the region and the country. **Section 4** provides a digest of information on King County public outreach, as well as tools and templates developed for other governments based on King County experience. Highlights include:

- *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, which was co-authored with the Climate Impacts Group at the University of Washington in association with ICLEI - Local Governments for Sustainability, and has become the basis of trainings to governments in King County, the U.S. and Canada
- The Cool Counties coalition of U.S. county governments, launched with the Sierra Club in July 2007
- The King County GreenTools CD-ROM, a toolkit and case study series for the creation of green building programs in municipal governments, which was released to suburban cities of King County in June 2007, and has since been the basis of trainings
- The September 2007 Clean Vehicles Now! conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today
- Incorporation of extensive recycling and composting efforts into the 12 events of the Marymoor Concert series, which attracted approximately 40,000 people, as well as collaboration with 103.7 The Mountain FM radio station and Puget Sound Energy to offset event-related greenhouse gas emissions by funding the generation of renewable wind energy

These events and collaborations underscore the continued role that King County can and must play in collective action to reduce global greenhouse gas emissions and prepare for climate change impacts. Along these lines, we must continue to act decisively, effectively and collaboratively in the next ten years to improve and expand these strategies, so that we will be able to limit the severity of climate change consequences in the 21st century and beyond.

Introduction

In February 2007, King County Executive Ron Sims published the county's inaugural Climate Plan, intended to set a course for King County government on how to reduce greenhouse gas emissions and prepare for climate change impacts to the region. This 2007 King County Climate Report is being submitted to the King County Council on February 1, 2008 as a progress report on implementation of the King County Climate Plan, as required by King County Council Motion 12362 and King County Executive Orders on Global Warming Preparedness PUT 7-5 through 7-8.

The spirit of the King County Climate Plan is to apply the best body of knowledge available to create law and policy that will support the reduction of greenhouse gas emissions and, and will help the region to prepare for projected impacts of climate change. More background on the intent of the King County Climate Plan can be found in the original document.

In 2007, the world experienced a noticeable increase in public knowledge and awareness about the nature and consequences of global climate change. Leading scientists worldwide have projected that our global climate is close to or even past a "tipping point" beyond which further changes will be irreversible, accelerated and potentially even catastrophic. The Intergovernmental Panel on Climate Change (IPCC) released multiple installments of a Fourth Assessment Report, which detailed the human causes of climate change with new (>90 percent) certainty, and released new projections about the impacts of climate change on regions across the world. The body of scientists comprising the IPCC won the Nobel Peace Prize for their collective work to develop scientific consensus along these lines, and U.S. Vice President Al Gore was jointly awarded the prize, in recognition of his documentary film on the topic. As a result, the social, economic and environmental consequences of climate change received significantly more attention in 2007 than in previous years, and political support seems to be broadening for meaningful action to reduce the greenhouse gas emissions that cause climate change.

However, as of early 2008, the U.S. federal government has not adopted comprehensive legislation to mandate national reduction of greenhouse gas emissions and to prepare our regions for the worst impacts of climate change. The U.S. Senate Committee on Environment and Public Works and U.S. House of Representatives Select Committee on Global Warming have entertained legislation and further developed political support for market-based mechanisms to reduce greenhouse gas emissions, but no cross-sector legislation has been adopted at present.

As was the case in 2006, meaningful action on climate change in the U.S. continues to take place at the state, regional and local government levels. A number of state governments have led stakeholder discussions to determine how to reduce emissions and prepare for climate change impacts most cost-effectively; some have adopted cap-and-trade systems to reduce greenhouse gas emissions; and several have begun to consider incorporating climate change mitigation and adaptation goals into their

comprehensive land use and transportation planning at the regional level. Many of these governments have also begun to take the first steps to transform their state and regional workforces to be employable in the “green collar” jobs that will be necessary for those governments’ climate policy goals to be achievable on the ground. Early stages of these programs indicate that sound climate policy does not conflict with economic development, as previously argued by opponents, but that such policy can in fact save money, grow the economy and create jobs, if complemented by well-structured workforce training programs.

In 2007, King County has either taken these steps as a government or advocated strongly for related regional, state and federal steps on all of these counts. As of February 2006, the State of Washington Climate Advisory Team has recently completed its stakeholder process regarding cost-effective climate change mitigation and adaptation strategies. The Puget Sound Regional Council announced plans to incorporate climate change mitigation and adaptation goals into its long-range planning document, Vision 2040. In addition to the City of Seattle’s leadership on organizing cities around the U.S. and world to adopt the Kyoto Protocol goals, 20 cities around this region have joined with King County to form the Puget Sound Regional Green Fleet Initiative, to reduce greenhouse gas emissions from municipal vehicle fleets. Political support to take meaningful action on climate change seems to remain strong.

In 2007, the first year of implementation of the King County Climate Plan, the Executive Office and county departmental staff have worked closely to:

- Raise awareness about the problems of climate change and build support within county government and with key public, private and non-profit organizations to reduce greenhouse gas emissions and prepare for climate change
- Build on and further refine the organization of the King County Climate Team and its supporting teams
- Institutionalize the goals and spirit of the King County Climate Plan across departments, divisions, programs and other existing planning documents
- Communicate the approach that effective climate change mitigation and adaptation strategies require a continuous, integrated process of educated experimentation and learning
- Implement the Climate Plan actions in a strategic, coordinated way across departments, divisions and programs
- Track progress and share information about lessons learned and potential new strategies for climate change mitigation and adaptation, as well as emerging issues that may not be addressed yet

Although it is impossible to offer a precise forecast of the years ahead, we can expect to see developments in several areas. In the area of mitigation, we will likely see a continued increase of interest in and need for workforce training on “green collar” jobs, to support the implementation of regional and state climate policy goals. We may also see the establishment of a mandatory federal market-based system to reduce greenhouse gas emissions across sectors in the U.S.

In the area of adaptation, if political and financial support for climate change science increases, we will likely see improved projections of climate change impacts on global, national and regional scales.

The following section provides more specific information about scientific advances and developments in 2007 which enable King County government to develop planning assumptions about the near future in this region.

Scientific Advances and Developments in 2007

This section summarizes major advances in climate change science, developments in climate change impacts and trends in greenhouse gas emissions in 2007. This brief summary is intended to build on the “Global Climate Change,” “Greenhouse Gas Emissions” and “Impacts to the Pacific Northwest” sections of the 2007 King County Climate Plan, to inform King County strategies for greenhouse gas emissions reduction and climate change preparedness. A full discussion of the scientific data regarding climate change is not presented in this report. A more complete description of the cause of climate change and associated consequences can be found in the 2007 King County Climate Plan.

This section first provides information about impacts at the global and U.S. levels, followed by similar information for the Pacific Northwest and Puget Sound region. The section subsequently provides information about major trends in greenhouse gas emissions at the global, national and state levels. Further information regarding the greenhouse gas emissions from King County government operations, the King County region, Washington State and the United States can be found in the Mitigation section (Section 3-A) at the beginning of each related subsection.

Global and U.S. National Climate Change Impacts

The following provides a summary of key advances in climate change science at the global and U.S. national level for 2007. Included are a summary of the findings of the Intergovernmental Panel on Climate Change Fourth Assessment Report and a summary of global and national climate changes observed in 2007.

Intergovernmental Panel on Climate Change Fourth Assessment Report

The Intergovernmental Panel on Climate Change (IPCC) is a scientific intergovernmental body set up by the World Meteorological Organization (WMO) and by the United Nations Environment Programme (UNEP). The IPCC was established in 1988 to provide the decision-makers and others interested in climate change with an objective source of information about climate change. In 2007, the IPCC completed its fourth assessment, culminating in the publication of four documents, including

- Climate Change 2007 – The Physical Science Basis (IPCC 2007a)
- Climate Change 2007 – Impacts, Adaptation, and Vulnerability (IPCC 2007b)
- Climate Change 2007 – Mitigation of Climate Change (IPCC 2007c)
- Climate Change 2007 – Synthesis Report (IPCC 2007d)

Previous IPCC assessments were completed in 1990, 1995, and 2001 (IPCC 2004). The fourth assessment represents the most up-to-date and peer reviewed understanding of the state of knowledge regarding climate change, and reflects a substantial expansion of the scientific understanding about climate change since the third assessment was completed in 2001. The fourth assessment report (IPCC 2007a) states that there is very high confidence (representing greater than 90% probability) that

the observed warming is due to human activities. This statement reflects substantial scientific consensus that the observed warming is due primarily to human-induced changes in the atmosphere and on the surface of the earth.

The United States' Climate Change Science Program (2007) also released a final draft report on the effects of climate change on various sectors of United States resources. This report, now in a final draft stage, examines both national and regional effects of shifting climate. The report documents a wide range of anticipated future climate change impacts on agriculture, natural resource lands, arid lands, and other sectors.

2007 Global and National Climate Highlights

In 2007, average global land and ocean surface temperatures were the fifth warmest on record (since 1880) (NCDC 2008). Including 2007, seven of the eight warmest years on record have occurred since 2001 and the 10 warmest years have all occurred since 1995. The average surface temperature in 2007 in the contiguous U.S. was the 10th warmest on record, at 54.2°F (12.4°C), which is 1.4°F above the average 20th century temperature.

Summer temperatures in much of the central and southeastern US exceeded many longstanding records in 2007. Of note, Phoenix, Arizona broke its record for most 110-plus degree days in one year, with 32 days reaching 110° C or greater (Arizona Republic 2007).

During the summer of 2007, polar sea ice retreated to the greatest extent ever recorded (National Snow and Ice Data Center 2007). At its minimum cover in September 2007, the area covered by arctic ice covered only 39 percent of the long-term average coverage area from 1979 to 2006. The extreme loss of sea ice in 2007 was associated with a combination of factors, including thinner sea ice at the beginning of summer, an increase in sunnier-than-average days, and unusual wind patterns that both brought warmer air from the south and pushed the sea ice away from the Siberian coast (National Snow and Ice Data Center 2007). Changes in summer sea ice cover could potentially have profound impacts on the rate of ocean warming, land erosion, primary production in the arctic ocean and overall habitat suitability for various Arctic species.

Considerable scientific uncertainty remains as to whether observed higher melt rates from the Greenland ice sheet will continue into the future, as summarized by the New York Times on January 7, 2008 (Revkin 2008). Should the higher melting rate continue, or even accelerate, the global average sea level rise estimates contained in the IPCC fourth assessment (2007a) may be substantially below actual levels (Mote et al., 2008).

Pacific Northwest and Puget Sound Region Climate Change Impacts

This subsection provides a summary of major developments in knowledge about water resource management, sea level rise, salmon recovery and wildfire in the King County region, as well as planning assumptions under development within and for King County government. In these areas, this subsection is an update to the "Impacts to the Pacific

Northwest” section of the 2007 King County Climate Plan. In other areas, such as climate change impacts to public health, research is still needed.

Water Resource Management

The Climate Change Technical Committee (CCTC) of the Regional Water Supply Planning Process (RWSPP) completed its work in December 2007 with the publication of a series of technical reports and the availability of an online database of climate impacted future weather and river flows. This collaborative effort included representatives from multiple cities, counties, utilities, state and federal agencies, Tribes, and University of Washington. University of Washington Professor Dr. Richard Palmer served as the technical lead for this effort. All reports, and the on-line climate-impacted weather and stream flow variables database, are available at: <http://www.govlink.org/regional-water-planning/tech-committees/climate-change/index.htm>. The committee’s analysis showed a projected regional temperature increase under all scenarios evaluated, with a corresponding shift in river flows towards higher winter flows, and lower spring and summer flows largely due to a shift in the type of winter precipitation from snow to rain in the mountains.

The three largest water utilities in the region (Seattle Public Utilities, Tacoma Water, and Everett Water) used the results of the committee’s climate change analysis and data to evaluate potential impacts on their water supply system yields and reliability. This step represents a major objective of the RWSPP – to have a coordinated, comparable assessment of climate change impacts on water supply considered in regional water supply planning. All of the utilities indicated that climate change will decrease the respective yields of the water supply systems without changes in operations and infrastructure.

Sea Level Rise

Researchers at the UW’s Climate Impacts Group (CIG) and the Washington Department of Ecology recently completed an analysis of sea-level rise along the Washington coast, including Puget Sound (Mote et al. 2008). This analysis incorporates information presented in the IPCC Fourth Assessment Report, along with local information on plate tectonics and local atmospheric circulation, in addition to more recent information on Greenland and Antarctic ice sheet melting. From this paper, sea level rise in Puget Sound is summarized in Table 1.

Table 1. Projected sea level rise in Puget Sound.

Amount of Change	2050	2100
Very Low (greater than 95% probability will be exceeded)	8 cm	16 cm
Medium (most likely)	15 cm	34 cm
Very High (less than 5% probability will be exceeded)	53 cm	124 cm

The National Wildlife Foundation (Glick 2007) and a UW master’s student (Peterson 2007) also analyzed potential impacts of sea level rise in the Puget Sound region. Both studies suggest sea level rise will result in loss of low-lying habitats such as salt marshes, and document the risk faced by valuable shoreline development in areas such as downtown Seattle and Harbor Island.

Salmon Recovery

Battin et al. (2007) have published an analysis of potential climate change impacts on Pacific Northwest salmon. This analysis, which modeled temperature and flow changes in the Snohomish River watershed and associated impacts on salmonid productivity, indicated that habitat changes due to climate change (such as increased temperatures, lower summer flows, and increased scour associated with increased high flows) will likely be detrimental to salmonid populations. Salmon recovery efforts, such as habitat restoration, will have the greatest likelihood of success if focused on lowland areas where major habitat changes have already occurred.

Wildfire

In December 2007, the Pew Foundation issued another in its series of environmental reports on the effect of climate change in the United States. This report, "Regional Impacts of Climate Change: Four Case Studies in the United States," provides regional perspective on major environmental issues related to climate change. In this report, the increasing risk of wildfire in the West, including the Pacific Northwest, was evaluated as one of the case studies (Batchelet et al 2007). As noted, the risk of wildfire increases sometimes dramatically as a result of projected climate change.

Planning Assumptions for King County Government

King County continues to collaborate with the Climate Impacts Group at the University of Washington to maintain and improve the understanding of climate change and its potential impacts. Based on this collaboration, Water and Land Resources Division's Science Section staff members are leading the effort to develop reasonable planning assumptions regarding projected temperature changes and sea level rise. As appropriate, these standardized assumptions will be used by King County departments and divisions in ongoing planning efforts.

In this body of work, initial temperature change assumptions are based on the recent findings of the CCTC for the RWSPP, representing projected temperature changes at SeaTac Airport during the next 75 years, and calculated from General Circulation Models (GCMs) downscaled to the Puget Sound region.

In this analysis, temperature assumptions are presented for years 2025, 2050, and 2075, under low, medium, and high levels of warming, as generally described by the amount of greenhouse gas emissions and model conservativeness (Table 2). Details regarding the GCMs, the process for data downscaling and the associated data, are available on-line at: <http://www.govlink.org/regional-water-planning/tech-committees/climate-change/index.htm>.

Table 2. Temperature Assumptions for King County Government

Statistic	Range	Historic	Year			
			2000	2025	2050	2075
Annual Average Temp (°C)						
	Historic	10.7				
	Low		11.6	11.7	11.9	12.0
	Medium		11.7	12.5	12.8	14.4
	High		12.0	12.5	13.2	14.5
August Average Temp (°C)						
	Historic	18.3				
	Low		19.5	20.3	20.7	21.3
	Medium		20.1	20.1	21.6	24.2
	High		19.8	20.5	22.2	24.1
Average days with max temp >90 ° F						
	Historic	1.8				
	Low		4.8	5.8	6.7	7.9
	Medium		5.5	6.0	10.5	20.9
	High		4.7	6.6	11.8	21.1
Average days with max temp >100 ° F						
	Historic	0				
	Low		0.2	0.3	0.4	0.5
	Medium		0.2	0.4	1.2	2.9
	High		0.2	0.3	0.9	2.1
Median last spring frost (date)						
	Historic	3/8				
	Low		2/26	2/22	2/22	3/1
	Medium		3/3	2/18	2/10	1/6
	High		2/25	2/20	2/3	1/21
Median first fall frost (date)						
	Historic	11/17				
	Low		11/24	11/27	11/27	11/28
	Medium		11/24	12/6	12/7	12/31
	High		11/28	12/6	12/8	12/31

Recently published projected estimates of sea level rise for Puget Sound (Mote et al. 2008) will be evaluated in 2008 to assess their utility as reasonable assumptions for King County government. It is anticipated that the Wastewater Treatment and Roads Services Divisions will use these assumptions in 2008 as they analyze facility vulnerability to sea level rise.

Global and U.S. National Greenhouse Gas Emissions

This subsection provides a summary of major trends in global, national and state greenhouse gas emissions. Further information regarding the greenhouse gas emissions from King County government (operations), the King County region, Washington State and the United States can be found in the Mitigation section at the beginning of each related subsection.

A report published in the Proceedings of the National Academy of Sciences (Canadell et al. 2007) found that the annual rate of global carbon dioxide (CO₂) emissions increased from 1.3 percent per year in the 1990s to an average of 3.3 percent per year since 2000. Atmospheric CO₂ levels have risen from about 280 parts per million (ppm) at the start of the Industrial Revolution (about 1750) to 381 ppm in 2006, representing an increase of approximately 36 percent (Canadell et al., 2007). Present atmospheric CO₂ levels are higher than they have been in over 650,000 years, and probably higher than they have been in over 20 million years (Canadell et al., 2007).

In 2006, global CO₂ emissions from fossil fuel use increased by about 2.6 percent (Netherlands Environment Assessment Agency 2007). The 2006 increase was largely associated with increased emissions from rapidly developing countries such as China and India. United States CO₂ emissions decreased by 1.4 percent from 2005 to 2006 (Netherlands Environment Assessment Agency, 2007). In 2005, Washington State greenhouse gas (GHG) emissions were estimated to be about 1 percent of the U.S. national total, or about 95 million metric tons (MMt) of gross CO₂-equivalent emissions (Ecology 2007).

In sum, scientific research on the causes and implications of global and regional climate change continued throughout 2007. The IPCC's Fourth Assessment Report represented a major milestone in climate change understanding, with near-universal scientific consensus that the observed warming is primarily due to human activities which generate emissions of carbon dioxide, methane, and other greenhouse gas chemicals.

References associated with this section are listed after the Appendix.

Actions and Emerging Issues

The following section of the 2007 King County Climate Report provides information on: actions taken in 2007 by King County Climate Team and King County departments in support of the goals of the King County Climate Plan; actions planned for 2008 and beyond; and emerging issues that could shape King County's future goals and actions to reduce greenhouse gas emissions and prepare for climate change impacts to this region.

Climate Change Mitigation

The Mitigation section of this report relates to **Goals 1 through 28** of the King County Climate Plan. Like the Climate Plan, it is communicated in terms of King County's actions to reduce or influence reductions in greenhouse gas emissions from

- King County Government Operations
- King County Region
- Washington State
- The United States

At each of these levels, King County's actions are also communicated in context of the "strategic focus areas" identified in the 2007 Climate Plan:

- Greenhouse Gas Accountability and Limits
- Climate-Friendly Transportation Choices
- Energy Conservation, Efficiency, Clean Energy and Clean Fuels (previously called "Clean Fuels, Clean Energy and Energy Efficiency")
- Land Use, Building Design and Materials

Climate Change Adaptation

The Adaptation section of this report relates to **Goals 28 through 52** of the 2007 Climate Plan and is communicated in terms of the following previously identified "strategic focus areas":

- Climate Science
- Public Health, Safety and Emergency Preparedness
- Surface Water Management, Freshwater Quality and Water Supply
- Land Use, Buildings and Transportation Infrastructure
- Economic Impacts
- Biodiversity and Ecosystems

Performance Measurement

The Performance Measurement section of this report relates to **Goal 53**, which called on King County to track progress in reducing greenhouse gas emissions and preparing for climate change impacts.

Public Outreach

Finally, this 2007 Climate Report also contains a Public Outreach “digest” section, which identifies actions taken or planned by King County to raise awareness among individual residents about how to reduce greenhouse gas emissions and protect health, property and natural resources from climate change impacts. These actions are communicated throughout the Mitigation and Adaptation sections as well.

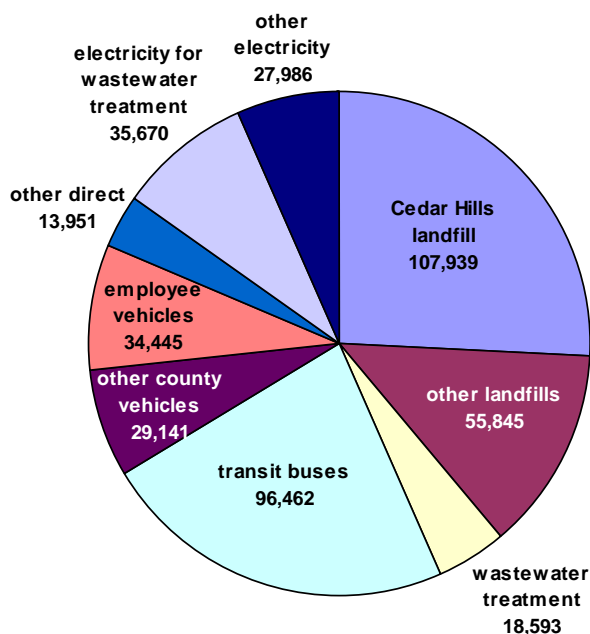
Mitigation

King County Government Operations

420,031 MTCO₂e

Figure 4 indicates sources of greenhouse gas emissions counted in King County's 2003 government inventory. The category of "employee vehicles" accounts for greenhouse gas emissions from vehicles used for commuting and personal vehicles used on county business.

Figure 4: King County Operational Emissions



More information on the King County operational greenhouse gas emissions inventory can be found at: <http://dnr.metrokc.gov/dnrp/air-quality/>.

King County Government Operations Greenhouse Gas Accountability and Limits (Goals 1 - 2)

Summary

The 2007 King County Climate Plan set a target of reducing operational (government) greenhouse gas emissions 80 percent below current levels by the year 2050, consistent with scientific conclusions about what is needed for global climate stabilization (**Goal 1**). The King County Climate Team and additional teams formed during the year continued to establish institutional processes for the data collection, analysis and internal actions necessary to lay a long-term foundation for meeting this goal.

The King County Climate Plan also set a goal of showing leadership in government greenhouse gas emissions accounting (**Goal 2**). In 2007, King County continued to break new ground in this area.

- King County completed its year 2000 baseline inventory and met its 2007 targets for the Chicago Climate Exchange, in which it was the first county and bus transit agency member.
- King County continued to update and refine the county's existing greenhouse gas emissions inventory.
- King County added greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county's own developments.
- King County developed a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas emissions.

In the coming year, the King County Climate Team will continue to institutionalize this work, will further refine the county's emissions inventories and SEPA emissions worksheet, and will continue to develop proposed greenhouse gas mitigation thresholds for SEPA-reviewed projects. In some cases, King County departments may need additional resources for emissions data collection, analysis and reporting.

Actions Taken in 2007

In 2007, King County Climate Team staff developed a Timetable of King County Goals on Climate and Energy, based on King County Executive Orders on Global Warming Preparedness (PUT 7-5 through 7-8), King County Council Motion 12362, and the King County Energy Plan (**Action 1-A**). The Timetable is available upon request.

Chicago Climate Exchange

In 2007, King County compiled and submitted fuel usage data to establish its year 2000 baseline GHG emissions for five fuels (gasoline, diesel, natural gas, heating oil, and steam). This established the county's baseline for the required greenhouse gas emissions reduction schedule (**Action 2-A**). The King County Climate Team further

formalized a process of collecting data on the use of the fuels monitored under its legal commitment to meet the targets of the Chicago Climate Exchange; this process resulted in the creation of the Chicago Climate Exchange work team. This interdepartmental work team has collected and reported 2000 energy use data and will begin the task of assembling 2007 use information in early 2008 (**Action 2-A, 2-B**). King County's 2006 Greenhouse Gas Emissions Inventory, which will be published in March 2008, will support the further monitoring of progress according to this timetable.

As the central resource for county-owned passenger vehicles, King County Fleet Division has continued to play an important role in maintaining the records of fuel use of all vehicles managed by the Fleet Division. (King County Solid Waste Division, Wastewater Treatment Division and Metro Transit Division manage separate fleets and records.) The King County Climate Team continues to collect this information and use it in multiple venues. For example, a regular comparison of this fuel use data across vehicle and fuel type is being developed as part of a tool not only for King County but also for municipal fleet managers in the Puget Sound region. More information about these activities is provided in the summary report related to Goal 3 and Goal 6.

Evaluation of Climate Change Impacts through SEPA

Pursuant to King County Executive Order PUT 7-10-1 on the Evaluation of Climate Change Impacts through the State Environmental Policy Act (SEPA), King County added greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county's own developments. King County developed a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas emissions. The worksheet is refined on a regular basis and is available through the Department of Development and Environmental Services website.

In 2007, King County staff members responsible for managing SEPA-reviewed projects have collaborated to establish internal processes to meet the new emissions reporting requirement, as well as to share and document experiences for outside use. For instance, King County Roads Division held a cross-departmental SEPA-related workshop to discuss this new requirement; and King County Wastewater Treatment Division organized a presentation for the King County Climate Team on the topic. King County Solid Waste Division GreenTools staff formed a workgroup to develop a framework for conducting life-cycle cost, life cycle and functional benefit assessments (triple life-cycle assessment) that will account for greenhouse gas emissions. Relevant King County staff members in these divisions have provided support to Climate Team staff in continued development and refinement of the SEPA Greenhouse Gas Emissions Worksheet.

Actions Planned for 2008

Chicago Climate Exchange

Meeting the targets of the Chicago Climate Exchange will continue to be an important goal for King County in 2008. In the coming year, King County staff will continue to collect data in support of the Chicago Climate Exchange inventory, and will update the

government (operational, all sources) emissions inventory for year 2006. Staff will work toward collecting and including electricity use information in these inventory reports.

All King County departments will continue to complete energy audits and technical engineering assessments, to ensure that adequate measures are currently in place for achieving other important emissions and energy use reduction targets, namely those set in Executive Orders and related Council Motions. These targets are identified in the Timetable of King County Goals on Climate and Energy, which is available upon request. As a part of the King County Solid Waste Plan update, King County Solid Waste Division staff members are also working on estimates of greenhouse gas emissions associated with or avoided by recycling and other waste reduction practices. New, increased waste reduction and recycling goals or actions may be proposed as a result of this process. In 2008, the King County Airport Division will also explore the possibility of establishing a greenhouse gas emissions inventory of on-field non-aircraft assets.

Evaluation of Climate Change Impacts through SEPA

In 2008, the King County Climate Team will formalize the creation of a SEPA – Climate work team, to support implementation of the new emissions reporting requirements in the county's SEPA-reviewed projects. This work team will consist of King County staff and external stakeholders, including representatives from the building community, environmentalists, and other local governments. It will continue to focus on improvement of SEPA Greenhouse Gas Emissions Worksheet, and will also support continued development of proposed greenhouse gas emissions mitigation thresholds for SEPA-reviewed projects. For more information about this action, see Executive Order PUT 7-10-1 on the Evaluation of Climate Change Impacts through the State Environmental Policy Act.

Emerging Issues in 2008

In 2008, the King County Climate Team and affected departments may require additional resources to institutionalize the activities of emissions data collection, analysis and reporting associated with the Chicago Climate Exchange commitment and SEPA requirement. For instance, King County Roads Services Division is currently considering development of an Environmental Management System (EMS) to formalize some of the activities related to data collection, analysis and reporting described above. More information on this proposal is available on request.

The King County Airport Division is also researching and receiving regular updates on potential federal regulation of greenhouse gas emissions from airports and the air travel industry.

King County Government Operations

Climate-Friendly Employee Transportation

(Goal 3)

Summary

The 2007 King County Climate Plan set a goal of reducing greenhouse gas emissions from employee travel, including employee commute trips and transportation associated with employee workplans (**Goal 3**).

In 2007, King County Department of Transportation collaborated with other departments to reduce the greenhouse gas emissions associated with employee workplans. For instance:

- The King County Employee Transportation Program continued to provide and expand transportation benefits to all eligible county employees, and King County explored new strategies such as alternative work arrangements to reduce employee commute trips.
- King County Fleet Division established a vehicle operator training program and other policies to reduce greenhouse gas emissions from employee driving of the county's general-purpose vehicles.

In 2008, King County Department of Transportation plans to launch a “Green Your Commute” initiative for employees. The King County Climate Team will continue to collaborate on this initiative and other new strategies to increase workplace efficiencies and develop new arrangements in support of reducing greenhouse gas emissions from employee transportation.

Actions Taken in 2007

Green Your Commute

In 2007, King County further encouraged employees to “green” their commutes (**Action 3-A**). The King County Employee Transportation Program provides transportation benefits to all eligible county employees, including Flexpasses for free travel on Metro Transit buses, vanpool fare subsidies, and incentives for carpooling, biking and/or walking to work. Notable accomplishments of this program in 2007 included the award of a \$40,000 grant from Washington State to implement strategies that reduce single-occupancy trips at downtown county worksites (representing 5,000 employees), and completion of a 2007 Commute Trip Reduction survey, which will guide the development of future strategies.

King County Department of Transportation placed seven Flexcars at or near King County work sites, and has provided incentives to attract employees to the Flexcar car-sharing service. By making Flexcars more convenient for employees to take short personal trips during the workday, this strategy is intended to reduce the number of King County employees who drive their personal cars to and from work, and increase the number of King County employees who commute by bus, bicycle, walking, and carpooling.

Work-Related Driving and Alternative Work Arrangements

In 2007, King County departments and divisions also sought to reduce greenhouse gas emissions from employee work-related driving (**Action 3-B, new action**). Fleet Division developed a vehicle operator training program, an idle reduction policy for non-transit vehicles, and new protocol for county fuel purchases by employees, in support of reducing greenhouse gas emissions and fuel use by employees with King County Fleet Division – managed vehicles. During the I-5 lane closure of summer 2007, several county workplaces also piloted alternative work arrangements (e.g., telecommuting and/or modified schedules).

The 2007 Harvest Celebration Farm Tour, coordinated by King County and WSU King County Extension, promoted the use of buses, van pools and other alternative modes of transportation to reduce vehicle miles traveled related to the Tour, and have made this a priority for 2008.

Actions Planned for 2008

Green Your Commute

In 2008, King County Department of Transportation plans to implement a promotional campaign to reduce single-occupancy commuting at downtown King County government worksites by 10 percent. The initiative will include: incentives for employees to give up their monthly personal parking arrangements; a “Green Your Commute” program similar to the King County InMotion campaigns in place for neighborhoods, but scaled for worksites; rewards for employees who are already taking “green” transportation to work; more Flexcar promotion; bike racks at King County facilities; and additional activities to be developed.

Work-Related Driving and Alternative Work Arrangements

King County will continue to explore new ways to reduce greenhouse gas emissions associated with employee workplans, such as carpooling, encouragement of “virtual” meetings as appropriate, improved coordination of meeting schedules that require travel, and increased use of low-emissions vehicles by employees with workplans that require significant driving. For instance, WSU King County Extension event organizers have made it a priority for 2008 to promote vanpooling and use of public transit for this year’s Harvest Celebration Farm Tour.

King County Fleet Division will continue to measure the results of new policies, such as the idle reduction policy, which was estimated in 2007 to have a 6 percent fuel savings and to conserve 92,650 gallons of fuel. These measurements will be verified in 2008, as the Fleet Division’s employee fuel tracking system is fully implemented.

King County continues to consider the consolidation of operational facilities, in order to increase efficiency. For instance, with planned 2008 upgrades, the hauling fleet of King County Solid Waste Division is expected to reduce vehicle miles traveled by hauling trucks due to closer proximity of its facilities.

Emerging Issues in 2008

County fuel use data (sorted by division, vehicle type and fuel use in support of the county's Chicago Climate Exchange inventory) will become increasingly important as county managers develop and improve strategies to reduce employee transportation. For instance, this data can help managers to develop the most cost-effective and appropriate strategies for encouraging carpooling to meetings, telecommuting, and other alternative work arrangements.

King County Government Operations

Energy Conservation, Efficiency, Clean Energy and Clean Fuels

(Goals 4 - 6)

Summary

The 2006 King County Executive Orders on Global Warming Preparedness and Renewable Energy placed a clear priority on development of strategies to reduce greenhouse gas emissions through energy conservation and efficiency in King County operations and the use of clean fuels in King County vehicles. The 2007 King County Energy Plan subsequently provided a blueprint for conserving energy, achieving greater energy efficiency and reducing greenhouse gas emissions from the County's government operations. The 2007 King County Climate Plan reinforced the importance of these targets (**Goal 4**), and set additional goals for King County's continued leadership in the use of waste-to-energy technologies (**Goal 5**) and clean and locally-produced transportation fuels and technologies (**Goal 6**).

King County took several notable actions in these areas in 2007:

- King County Department of Transportation has promoted new technologies by investing in clean transit buses and vehicles, including: an option to purchase up to 500 additional hybrid buses, a plug-in hybrid-electric vehicle, and a cutting-edge heavy-duty hybrid truck.
- In September 2007, the King County Climate Team and Department of Transportation hosted the "Clean Vehicles Now!" conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today
- King County used B20 (20 percent blended biofuel) in all vehicles in the county's fleet, as weather conditions permitted.
- King County Metro Transit established a first-of-its-kind agreement to purchase 2 million gallons of biofuel for use in buses, to be made from canola grown on farms in Yakima County, Washington, which is to be fertilized with biosolids from King County's wastewater treatment plants.
- The King County Solid Waste Division secured approval of a contract for conversion of methane from the King County landfill to usable energy.

In the coming year, the King County Climate Team will continue to collaborate with and the public and private sector on issues such as encouragement of electrified transportation, expanded fueling infrastructure for biofuels, a regional market for clean

vehicles, and improved evaluation of landfill sequestration of greenhouse gas emissions.

Actions Taken in 2007

Energy Conservation, Efficiency and Waste-to-Energy

The 2007 Energy Plan (**Goal 4**) sets forth the following goals: 50 percent renewable energy use across operations; be a leader in testing new, clean energy and climate-friendly fuels and technologies; and conserve 10 percent of energy across operations. The Climate Team and the Energy Task Force have developed a coordinated strategy to achieve these goals.

In 2007, King County management of the Cedar Hills Landfill continued to exceed the national landfill average of methane gas capture (with current capture at approximately 90-95 percent). This high capture prevents over 200,000 metric tons of methane-based greenhouse gas emissions from entering the atmosphere. If continued in the long term, effective management by King County of the Cedar Hills Landfill will provide the additional benefit of storing carbon-based plant matter for more than 100 years, sequestering over 270,000 metric tons of greenhouse gases a year, and serving as a carbon “sink” as long as the landfill is open (**Action 5-A**).

In July 2007, the King County Council approved a gas-to-energy contract for conversion of methane from the King County landfill to usable pipeline-quality energy (**Action 5-A**). The project is on schedule to begin construction in 2008 for operation in 2009, and could reduce greenhouse gas emissions by 100,000 metric tons.

The King County South Treatment Plant converts methane from wastewater operations for heat and energy use within the plant. Some of this methane was used for the operation of a hydrogen fuel cell within the plant, which was designed and operated as the first of its kind demonstration project, on an \$8,571,000 grant over eight years from the United States Environmental Protection Agency.

King County continued work to assemble a consolidated energy use data collection software system (Utility Manager) to support and document both energy savings and greenhouse gas emission reduction efforts. Data from this system is already being used for 2006 and 2007 greenhouse gas emission inventories. A fully operational system is expected by the second quarter of 2008.

The County has conducted energy audits and technical engineering assessments to ensure that measures are underway to achieve the targets identified in the Timetable of King County Goals on Climate and Energy (available upon request). In some cases, these energy audits have resulted in discovery that county energy consumption was overestimated and that the county had consequently been overbilled. As a result, the energy audits had the co-benefit of identifying immediate financial savings as well as informing new strategies to reduce energy consumption.

The Department of Transportation has taken a number of significant actions in 2007 with the intention (or co-benefit) of conserving energy, increasing energy efficiency, and investing in clean transportation fuels. As a result of energy audits completed by the Department of Transportation at three transit bases, investments have been made in ultra-high energy-efficiency heating, ventilation and air conditioning (HVAC) replacement. In support of ongoing conversion of lighting for signals, buildings and infrastructure to higher-efficiency technology, an additional 22 solar-powered lighting systems were installed by Metro Transit in bus passenger shelters in 2007, in addition to the 54 solar-powered lighting systems installed in 2006. The Roads Division received a grant from Puget Sound Energy to convert lighting to compact fluorescent bulbs. The Roads Division has also begun to convert old equipment (e.g., chainsaws) to more energy-efficient technology. Finally, the King County Airport demolished its energy-intensive South Terminal building in 2007.

Clean Fuels and Technology Investment

In 2007, King County Department of Transportation made or supported several major purchases that further drove development of the clean transit and vehicle industries. In early 2007, King County Metro Transit established a first-of-its-kind agreement to purchase 2 million gallons of biofuel for use in buses, to be made from canola grown on farms in Yakima County, Washington, which is to be fertilized with biosolids from King County's wastewater treatment plants. This purchase was a key factor in the construction of the nation's largest biodiesel refinery in Gray's Harbor Washington.

In May 2007, King County announced a landmark contract with an option to purchase up to 500 additional hybrid-electric buses, in addition to its existing fleet of 214, further driving development of the clean transit industry. In late 2007, King County Fleet Division received delivery of its first plug-in hybrid-electric (PHEV) vehicle, a first-of-its-kind heavy-duty hybrid truck, and two compressed natural gas (CNG) vehicles (**Action 6-A**). The heavy-duty truck had been funded by a \$250,000 United States Environmental Protection Agency grant and a \$150,000 United States Department of Transportation (Congestion Mitigation and Air Quality Program) grant to the Northwest Hybrid Truck Consortium, which King County started in 2006. In fall 2007, King County Fleet Division also joined with other local and regional governments to create a PHEV demonstration project, funded in part by a grant from the United States Department of Energy Idaho National Laboratory (**Actions 6-A through 6-E**).

Over the year, King County has used B20 (20 percent blended biofuel in a base of ultra-low sulfur diesel, or ULSD) in all appropriate vehicles of the county's transit and non-transit fleets. During the past year, King County Solid Waste Division used 160,000 gallons of B20. All Solid Waste Division transfer tractors and heavy equipment are now running on that blend, as weather permits. Wastewater Treatment Division operated its intrastate hauling fleet on B20 from March through October, with plans to expand to year-round operations as understanding of the fuel improves for low winter temperatures.

In September 2007, the King County Climate Team and Department of Transportation hosted the “Clean Vehicles Now!” conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today. The event attracted over 500 attendees, with a clean vehicle ride-and-drive, a stationary exhibit and a conference program that communicated information on best practices, innovations, and trends in clean vehicle fuels and technologies. King County Executive Ron Sims, the King County Council and over 20 cities participated in this event, at which King County Fleet Division and other municipal fleet managers announced the creation of the Puget Sound Regional Fleet Initiative **(Actions 6-A and 6-F)**. More information on the Puget Sound Regional Fleet Initiative is provided in the summary related to Goal 16. This initiative will further support the goals of Council Ordinance 15988, adopted in December 2007.

Finally, King County Metro Transit began operation of the South Lake Union Streetcar as planned, in December 2007.

Climate-Friendly Purchasing

“Environmentally friendly” purchases have been fostered over the years by the King County Environmental Purchasing Policy, originally established in 1989, and the King County Environmental Purchasing Program. According to the Environmental Purchasing Program 2006 Annual Report, “King County agencies purchased 36 million dollars worth of environmentally preferable products and saved \$640,000 compared to the cost of conventional products.” While not all purchases under this program have been made with the goal of reducing greenhouse gas emissions, in 2007 the program’s staff began to explore opportunities to measure major purchases according to the greenhouse gas emissions they help the county to avoid.

Actions Planned for 2008

Energy Conservation, Efficiency and Waste-to-Energy

In 2008, the King County Climate Team and Energy Task Force will train staff on how to use Utility Manager software, intended to provide data and analysis about energy consumption and billing. Energy audits, identification and implementation of energy conservation measures will continue at an accelerated pace, and planning to achieve four-year goals (10 percent reduction by 2010) will be completed. These teams will also work with experts in the waste management, government and academic communities to refine accounting protocols for landfill sequestration.

In 2008, King County Metro Transit will conduct energy audits of four remaining transit vehicle maintenance facilities, as well as the Central Supply Depot. Divisions will also collaborate to expand the use of solar-powered lighting systems at bus passenger shelters in locations deemed suitable. Roads Division will replace old, low-efficiency and fossil fuel-powered equipment with new climate-friendly technologies. Roads Division will also convert traffic signals and lighting to energy-efficient technologies, and will participate in Puget Sound Energy’s Green Power Generation program at road maintenance facilities. The King County Airport Division will seek additional ways to

improve the energy efficiency of its facilities (e.g., in its upcoming HVAC system replacement).

Clean Fuel and Technology Investment

In 2008, the King County Department of Transportation and Department of Natural Resources and Parks are on track to continue demonstrating national leadership in their efforts to reduce greenhouse gas emissions through energy conservation and efficiency and the purchase and use of clean transportation fuels and technology. The Department of Transportation has already positioned itself to institutionalize these efforts through the activities of two top-level staff members detailed to the climate change agenda, regular management briefings, and the establishment of internal work teams strategically focused on the top priorities of the King County Climate Team. The work plan of the Department of Transportation in 2008 will further improve upon organizational processes to meet King County's climate change goals, with activities including educational events on clean fuels, clean vehicle and transit technologies, and fuel management.

Clean fuel and technology investments are budget priorities for the County. In 2008, King County Metro Transit will seek improvements in clean fuels and technologies for transit buses and facilities, including smaller engines and improved hybrid technologies. The County also seeks development of biodiesel and natural gas fueling stations for vehicles at county facilities, and expanded solar power and energy efficient lighting systems. King County Solid Waste Division and Wastewater Treatment Division will seek to extend biodiesel use to year-round operation, as the industry and learning advances for fuel use in low temperatures.

King County Fleet Division will continue to seek opportunities to invest in clean vehicles, and will collaborate with the Puget Sound Green Fleet Initiative to develop a "green fleet" standard for municipal fleet managers to follow when investing in clean fuels and technologies. More information on the Puget Sound Green Fleet Initiative is provided under Goal 16.

Climate-Friendly Purchasing

Staff members from the King County Environmental Purchasing Program, will join the King County Climate Team in 2008. King County Metro The Fleet Division is currently developing a fleet inventory by fuel type, which will be an additional resource for other divisions, departments and governments to guide further investment decisions.

Emerging Issues in 2008

The King County Department of Transportation has identified several emerging issues, which the Climate Team and department staff will be considering in 2008. King County Metro Transit and Fleet Division are researching projections related to vehicle and bus markets for clean fuels and technology in the coming 5-10 years. These forecasts should provide important estimates about long-term policy considerations (e.g., likelihood and nature of future federal cap-and-trade), economic aspects (e.g., price and supply) of a given purchase, and projections about the availability of workers (e.g.,

vehicle maintenance employees) to support clean vehicle and bus purchases, among other factors.

The King County Climate Team is researching which clean fuels and technology will mostly likely be high-growth in the future, which may require greater labor supply in the future, and consequently which may require new strategies for workforce development.

King County Metro Transit, Fleet Division, and Solid Waste Division staff members will continue to research and receive training in life cycle fuel and energy use assessments, and continuing to learn and train other staff on observations about fuel economy.

King County Government Operations Land Use, Building Design and Materials (Goals 7 - 8)

Summary

In the 2007 Climate Plan, King County set a goal of reducing greenhouse gas emissions from its buildings and infrastructure investments through climate-friendly design, development, use and demolition (**Goal 7**). King County also set a goal of being a leader in the development and use of technologies, materials and waste reduction practices that reduce operational greenhouse gas emissions (**Goal 8**). Other plans and policies that support these goals are the 2007 King County Energy Plan, the Environmental Purchasing Policy (CON 7-1-2- AEP), and the King County Green Building Ordinance.

Notable developments in this area in 2007 included the following:

- The King County Green Building Team updated the county's Green Building Ordinance, building on its past successes and strengthening its effectiveness in reducing greenhouse gas emissions.
- King County added greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county's own developments.
- King County developed a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas emissions.
- King County divisions responsible for managing SEPA-reviewed projects began to develop strategies to reduce greenhouse gas emissions in their respective projects.
- King County released a GreenTools CD, which provides training tools and case studies for other local governments to use in developing municipal green building programs.
- King County projects in Metro Transit, Roads Division and Parks Division demonstrated leadership in green and climate-friendly building practices and operations.

In the coming year, the King County Climate Team will continue to explore research on the use of sustainable materials in urban environments to reduce greenhouse gas emissions and heat impacts of climate change.

Actions Taken in 2007

Green Building Ordinance

As of early 2008, the King County Green Building Team has proposed a renewed Green Building and Sustainable Development Practices Ordinance (**Action 7-A**). This ordinance focuses only on King County government developments, with the following updates:

- All LEED eligible capital projects must register with the United States Green Building Council and achieve a LEED Gold rating.
- All non-LEED eligible projects must incorporate sustainable development practices and fill out a scorecard that shows the strategies that are being used.
- County projects should use an integrated design process and triple-life cycle assessment to optimize design approaches.
- Divisions must conduct an energy audit of existing buildings and prioritize improvements that can be made to achieve a ten percent reduction in energy consumption by 2012.
- Guidelines will be developed for divisions to incorporate in their operations manuals for existing buildings (**Action 7-C**). The guidelines will provide direction on the use of green practices in minor remodels and renovations, water conservation, waste reduction and recycling expectations, green cleaning standards, and retro commissioning to improve a facility's operating performance.
- The countywide "Green Building Team" will continue its work.
- Project managers will be required to train in green building and sustainable development practices.
- The county's green building grant program for the private sector will continue, encouraging LEED and Built Green certification.

Finally, the ordinance specifies that the development of the sustainable development scorecard, guidelines for triple-life cycle assessment, integrated design process and building operations procedures will be developed in concert with the County Green Building Team by July 1, 2008 (**Action 7-B**).

Evaluation of Climate Change Impacts through SEPA

As of October 15, 2007, King County Executive Order PUT 7-10-1 required that King County add greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county's own developments. King County developed a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas

emissions. The worksheet is refined on a regular basis and is available through the Department of Development and Environmental Services website.

King County divisions responsible for managing SEPA-reviewed projects began to develop strategies to reduce greenhouse gas emissions in their respective projects **(Action 7-B)**.

In 2007, King County staff members responsible for managing SEPA-reviewed projects have collaborated to establish internal processes to meet the new emissions reporting requirement, as well as to share and document experiences for outside use. King County Roads Division held a cross-departmental SEPA-related workshop to discuss this new requirement; and King County Wastewater Treatment Division organized a presentation for the King County Climate Team on the topic as well. The King County Solid Waste Division GreenTools staff formed a workgroup to develop a framework for conducting life-cycle cost, life cycle and functional benefit assessments (triple life-cycle assessment) that will account for greenhouse gas emissions. King County staff members in these divisions have provided important support to Climate Team staff in development and refinement of the SEPA Greenhouse Gas Emissions Worksheet.

Green Building and Sustainable Development Practices

In 2007, King County Metro Transit demonstrated leadership in implementing construction projects according to green building principles. Metro Transit initiated two new LEED projects: the Metro Transit Police building, which is intended to be LEED Gold, and the Atlantic / Central Base Operations Building, which is intended to be LEED Platinum.

In 2007, King County Parks Division has continued to: convert or install new synthetic athletic fields to create more recreational opportunities with no irrigation, pesticides, fertilizers, or emissions from mowing. The Division is using automated lighting systems and high efficiency lighting to reduce energy consumption and has upgraded facilities to use the most efficient energy and water fixtures and equipment. Recycling and the use of compostable products has been promoted at our concerts and events. King County Parks also held a carbon-neutral concert series at Marymoor Park in summer 2007.

King County staff members have continued to research developments in climate-friendly materials. King County Solid Waste Division is currently working on estimates of greenhouse gas emissions associated with or avoided by recycling and other waste reduction practices. The King County Environmental Purchasing Program continues to be a national leader in providing information on environmentally preferable purchasing choices. In late 2007, members of the King County Climate Team have developed a proposal for further work with Arizona State University's National Center for Excellence in Climate and Energy, a multi-disciplinary institution that provides research on how sustainable materials in the urban environment can both reduce greenhouse gas emissions and limit the negative effects of climate change and urban heat. King County Roads Division has: held a presentation about employing cement substitutes in bridge projects, initiated a study of pavement options to reduce greenhouse gas emissions,

and continued to assess environmental sound materials for other road capital projects **(Action 8-B)**. This work is expected to result in a compilation of best practices for road construction according to climate change considerations and green building principles.

Actions Planned for 2008

Green Building Ordinance

Pending approval of the renewed Green Building and Sustainable Development Practices Ordinance by the King County Council, the Green Building Team will implement the ordinance. As described in the previous section, there will be multiple new initiatives directed by the new ordinance, including: the improvement of life-cycle analysis for county projects, improved reporting requirements for green building projects, and expanded green building tools and training for county project managers.

Evaluation of Climate Change Impacts through SEPA

In the coming year, the King County Climate Team expects to refine the SEPA Greenhouse Gas Emissions Worksheet and continue to develop proposed mitigation thresholds, in conjunction with the business community, non-profit organizations and county divisions responsible for SEPA-reviewed projects. King County divisions responsible for managing SEPA-reviewed projects are also on track to show continued leadership in the development of actions that mitigate the projects' greenhouse gas emissions impacts.

Green Building and Sustainable Development Practices

As described in the renewed Green Building Ordinance, King County departments and divisions are strongly encouraged to show leadership in green building and sustainable development practices. In 2008, Roads Division will review all ongoing Capital Improvement Projects for opportunities to use cement substitutes at the highest practicable percentages, and the Green Building Team will also provide information on cement substitutes to relevant project managers. In 2008, the King County Climate Team will also further explore research with relevant institutions on the use of sustainable materials in urban environments to reduce greenhouse gas emissions and the heat impacts of climate change. King County Parks Division may also explore opportunities to educate the public about its climate-friendly materials and operations, in light of its frequent public engagement.

The King County Climate Team will continue to explore opportunities to develop "green collar" jobs in the region.

Emerging Issues in 2008

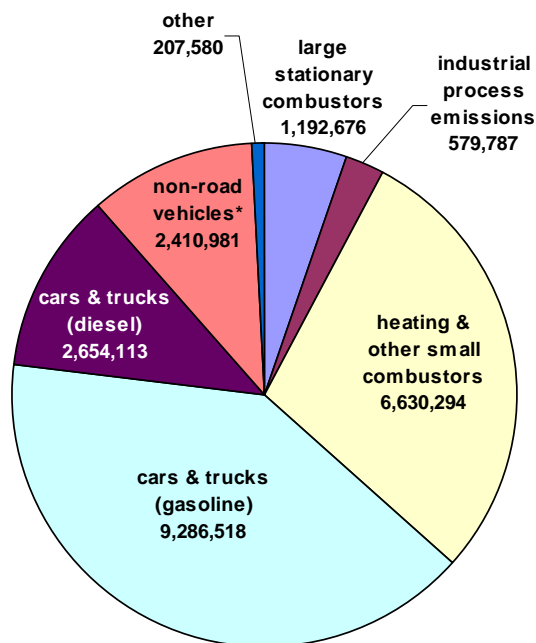
In 2008, King County staff will research issues related to green building practices and the materials and construction industry, including concerns of whether the region will have sufficient skilled labor for the county's near-term and long-term green building projects.

King County Region

23,000,000 MTCO₂e

Figure 5 describes sources of greenhouse gas emissions in King County's 2003 geographic inventory. The wedge "non-road vehicles" includes marine vessels and small aircraft.

Figure 5: King County Region Greenhouse Gas Emissions (23,000,000 MTCO₂e)



More information on King County and Puget Sound's regional greenhouse gas emissions inventory can be found at: <http://www.pscleanair.org>.

King County Region Greenhouse Gas Accountability and Limits (Goal 9)

Summary

The 2007 King County Climate Plan established the following goals: organizing efforts to develop regional consensus on a target year by which to stop growth of regional greenhouse gas emissions; collaborating with federal, state and local partners to develop a blueprint for near-, mid-, and long-term regional emissions reductions, with clear and accountable benchmarks and timetables; and organizing efforts to standardize regional greenhouse gas emissions calculations **(Goal 9)**.

The King County Executive and King County Climate Team took several steps on this path in 2007:

- In 2007, King County Executive Ron Sims testified at the United States Senate Environment and Public Works Committee on S. 2191, America's Climate Security Act, on the importance of incorporating regional transportation strategies into that legislation.
- The King County Executive Office played an active role in the Washington Climate Advisory Team's development of recommendations for strategies to reduce greenhouse gas emissions.
- King County worked with the Puget Sound Regional Council to incorporate climate change considerations in revisions of long-term regional land use and transportation planning documents.
- King County initiated planning discussions with experts from regional institutions about how to develop a regional carbon monitoring system that would provide meaningful, on-the-ground emissions information on a regular basis to decision-makers and the public.

In the coming year, King County will continue to seek to influence regional planning for near-, mid-and long-term greenhouse gas emissions reduction.

Actions Taken in 2007

In November 2007, King County Executive Ron Sims testified at the United States Senate Environment and Public Works Committee on S. 2191, America's Climate Security Act **(9-B)**. This testimony focused on the most effective approach to reduction of greenhouse gas emissions from the transportation sector.

Throughout 2007, the King County Executive Office and departmental staff participated on the Washington Climate Advisory Team **(9-B)**. More information on this action is provided under Goal 20.

Actions Planned for 2008

In the coming year, King County will continue to advocate for stopping the growth of regional greenhouse gas emissions, and participate in the Puget Sound Regional

Council planning process toward this end. King County will also continue to play an active role on the Washington Climate Advisory Team.

King County staff will also support the establishment of a team of experts and infrastructure to conduct marine, terrestrial and atmospheric research on our regional greenhouse gas emissions. King County will leverage its existing monitoring capacity in support of this new effort.

King County will focus on developing strategies for reducing vehicle miles traveled, to reduce greenhouse gas emissions from the region's transportation sector. More information on these strategies is provided under Goal 10.

Emerging Issues in 2008

In his November 2007 testimony on S. 2191, Executive Sims presented an analysis showing that even with effective "clean car" laws in place, such as Corporate Average Fuel Economy standards, carbon dioxide emissions from passenger vehicles in 2030 are projected to be significantly above 1990 levels. In other words, projected growth of vehicle miles traveled would overwhelm the carbon dioxide savings resulting from vehicle and fuel regulations. To reduce carbon dioxide emissions from transportation to 60 percent below 1990 levels (or 80 percent below current levels) by 2050, we must further improve vehicles and fuels, and we must reduce vehicle miles traveled per capita.

This analysis about the importance of reducing vehicles miles traveled was published in *Growing Cooler: The Evidence on Urban Development and Climate Change*, by the Urban Land Institute, Smart Growth America, the Center for Clean Air Policy, and the National Center for Smart Growth Research and Education. It will continue to guide the King County Climate Team's approach to regional reductions of greenhouse gas emissions.

King County Region

Climate-Friendly Transportation Choices

(Goals 10 - 12)

Summary

The 2007 King County Climate Plan articulated the following goals: expanding and promoting the use of alternative transportation such as public transit, carpooling, and non-motorized travel (**Goal 10**); accounting for greenhouse gas emissions in regional transportation infrastructure investments (**Goal 11**); and ensuring that the movement of people and goods is both economically efficient and equitable (**Goal 12**).

Highlights of King County's work in 2007 included the following:

- Implementation of over 56,000 new hours of transit service as part of the Transit Now! initiative, which is connecting high-density communities to new streamlined bus routes.
- Opening of the downtown bus tunnel in September 2007 and start of the South Lake Union Streetcar service in December 2007, both of which represent increased opportunities for climate-friendly travel on public transit.
- Extensive promotion of public transit, through such programs as InMotion and Partners in Transit and single events such as Earth Day
- Development of tools in the Healthscape program to measure the benefits of non-motorized transportation projects, such as avoided greenhouse gas emissions, communities that support walking, and increased public health.
- Designation as an "Urban Partner" of the United States Department of Transportation and anticipated receipt of a \$140 million grant to implement a pilot tolling project on SR-520. Tolling the SR-520 bridge will reduce unnecessary trips, increase transit, and could reduce greenhouse gas emissions.

In 2008 King County will continue to reduce vehicle miles traveled through innovative and aggressive promotion of public transit. King County will also continue to develop modeling tools to assess greenhouse gas emissions related to regional transportation.

Actions Taken in 2007

In 2007, King County aggressively expanded and encouraged use of public transit, through such initiatives as Transit Now!, as well as reopening of the downtown bus tunnel and initiation of the South Lake Union Streetcar service (**Actions 10-A, 11-B**).

King County Metro Transit, which enabled 56,000 new hours of service through the Transit Now! initiative, continued its focus on connecting high-density communities to new streamlined bus routes. Actions taken pursuant to Transit Now! included a new partnership with Children's Hospital to add trips on key routes between high-density areas and that key family destination.

King County InMotion implemented programs in Rainier Beach, South Lake Union and other areas around the county to promote community use of public transit; Partners in Transit secured the Woodland Park Zoo as a new participant; and Metro Transit promoted public transit extensively with KNDD radio station, encouraging people to ride the bus to the Endfest event at Qwest Field. Metro Transit also offered free riders on Earth Day 2007. As part of a short-term strategy to ease congestion during the I-5 closure, King County partnered with the State of Washington and the City of Seattle to design effective re-routes for affected public transit routes, and created 21 vanpools and seven vanshares.

King County Healthscape continued to institutionalize its work to encourage the creation of more walkable communities (**Action 10-B**). The program began developing a series of forecasting tools to project the likely climate and health benefits of development that supports non-motorized travel, such as bike lanes and walking trails, as well as potential impacts of other development on greenhouse gas emissions and public health (**Action 11-A**). Phase One of Healthscape also produced a map indicating the “walkability” of different communities based on mix of uses, density, street connectivity and amount of retail in the area. King County Executive Ron Sims commented on this work in his testimony on S. 2191, highlighting the importance of compact development and walkability for reducing regional greenhouse gas emissions.

The Department of Transportation continued promoting employee use of Flexcar (mentioned in the summary related to Goal 3), as well as workplace showers and bike racks for bicycle commuters (**Action 10-C**). The King County Employee Transportation Program was awarded a \$40,000 grant from the State of Washington to implement programs to reduce “driving alone” commute trips at downtown worksites.

In August 2007, the United States Department of Transportation designated the county, Washington State Department of Transportation and Puget Sound Regional Council as finalists in the Urban Partnership program. As a result, the agencies anticipate receiving a \$140 million grant to implement congestion pricing on SR-520 and invest in public transit and new transportation technologies (**Action 12-A**).

Finally, King County Department of Transportation continued planning a “Pay as You Drive” vehicle insurance demonstration project, expected to be launched in 2008 (**Action 12-B**).

Actions Planned for 2008

In 2008, under the Transit Now! initiative, King County will continue to plan five “Rapid Ride” corridors, designed to increase speed and reliability as well as passenger comfort and safety.

InMotion and Commute Trip Reduction programs will continue, and Commute Trip Reduction will be expanded to an even broader range of employers.

King County Department of Transportation is continuing to work with the State of Washington, the Federal Highway Works Administration, and Unigard to launch a “Pay as You Drive” insurance demonstration project in mid-2008.

Emerging Issues in 2008

As mentioned previously, Executive Sims presented an analysis in his November 2007 testimony on S. 2191 indicating that even with effective “clean car” laws in place, carbon dioxide emissions from passenger vehicles in 2030 are projected to be higher than 1990 levels. This analysis makes it clear that we must further improve vehicles and fuels as well as reduce vehicle miles traveled per capita. This analysis will guide the King County Climate Team’s approach to regional reductions of greenhouse gas emissions.

King County Region

Land Use, Building Design and Materials

(Goals 13 - 15)

Summary

In the area of land use, building design and materials, the 2007 King County Climate Plan set the following goals: promoting coordinated land use and transportation planning for compact, climate-friendly development, and healthy agricultural and forest economies (**Goal 13**); promoting design and construction practices that reduce greenhouse gas emissions from residential, commercial and other facilities (**Goal 14**); and working with regional emitters in industry and materials production to reduce greenhouse gas emissions (**Goal 15**).

- In 2007, King County continued to work with the Puget Sound Regional Council on coordinated regional planning, and undertook its four-year update of the King County Comprehensive Plan.
- King County added greenhouse gas emissions to the environmental review of projects undergoing review mandated by SEPA, including the county's own developments.
- King County developed a greenhouse gas emissions worksheet tool that can assist project applicants in answering the SEPA checklist question relating to greenhouse gas emissions.
- In June 2007, King County GreenTools released a CD toolkit for suburban cities to use as a guide in developing municipal green building programs.
- In conjunction with Washington State University - King County Extension, King County enhanced existing outreach activities or launched new events to engage the public on issues of land use and climate change, particularly in the areas of agriculture and forestry.

In 2008, King County staff will continue to conduct outreach on both green building tools and the SEPA emissions reporting requirement. King County will also continue to research ways to develop "green collar" jobs in the region.

Actions Taken in 2007

Regional Planning

King County staff members participated in the Puget Sound Regional Council staff committee that prepared draft documents for the "Vision 2020" Update. King County staff members provided both formal and informal comments on the Countywide Planning Policies and the Preferred Growth Alternative, with particular attention to the role that compact development can play in reducing regional greenhouse gas emissions (**Action 13-A**).

King County can reduce greenhouse gas emissions through not only changes in its day-to-day operations, but also through modifications to land use and transportation policies. As part of the draft 2008 King County Comprehensive Plan update, King County is integrating information on the potential impacts of climate change on King County's

natural and built environment, and incorporating policies throughout the document to provide direction on climate change assessment, mitigation, and adaptation. The draft policy updates will emphasize the relationship between transportation, land use, and greenhouse gas emissions. Proposed policies have been incorporated into the draft Comprehensive Plan update to encourage the development of supply and demand for locally grown food, and to reduce the greenhouse gas emissions associated with food freight (also known as “food miles traveled”) (**Action 13-B**). Policies in the draft Comprehensive Plan update also encourage consideration of climate change impacts to forestry (**Action 13-C**), agriculture, and groundwater.

Evaluation of Climate Change Impacts through SEPA

In fall 2007, King County passed an Executive Order (PUT 7-10) requiring that SEPA-reviewed project proponents report information about estimated greenhouse gas emissions associated with their projects. To support implementation of this requirement, King County staff developed a SEPA Greenhouse Gas Emissions worksheet for project proponents to use in estimating emissions. The county conducted outreach to the development community in conjunction with the implementation of this Executive Order (**Action 14-B**).

Green Building Promotion

King County continues to work with the Master Builders Association Built Green™ program, the Cascadia Region Green Building Council, the American Institute of Architects and the Urban Land Institute to build on its experience in the green building industry, and to promote green building practices across the region. King County GreenTools released a CD toolkit in June 2007 for suburban cities to use as a guide in developing municipal green building programs (**Action 14-A**). A series of trainings based on this CD were offered to city staff, beginning in November 2007. King County also organized a Green Building Summit for county and city staff, held at the University of Washington. In November 2007, King County co-hosted two events featuring Van Jones of the Oakland Green Jobs Corps.

Agriculture and Forestry Outreach

In November 2007, King County launched the “Eat Local Thanksgiving” Initiative, to encourage people to eat locally grown foods. Materials for this initiative included a greenhouse gas emissions calculator and information on the relationship between eating locally grown food and reducing greenhouse gas emissions. This initiative received a great deal of media attention (**Action 13-B**).

King County and WSU King County Extension continued to provide eight-week forest stewardship classes. This included a series of three workshops in 2007, attended by a total of 110 forest property owners. The goal of these classes is to teach forest landowners how to improve and maintain forest health, as healthy forests are not as susceptible to disease and are more resistant to drought, and they provide habitats that foster biodiversity and will be more resilient to climate change.

2007 King County Climate Report
February 2008

WSU King County Extension also partnered with King County to host a number of events, including a Farm Summit with the City of Enumclaw to explore ways to help farms in area become more economically viable; participated in the Puget Sound Focus on Farming Conference, providing a presentation on “bio-energy” production; and participated in the Washington Climate Advisory Team.

Another key activity of 2007 included evaluation of the Enumclaw dairy manure digester, piloted by King County and WSU King County Extension. This evaluation has resulted in useful information about related greenhouse gas emissions and economical feasibility. More information is available upon request.

Actions Planned for 2008

In 2008, the King County Executive will propose a draft Comprehensive Plan update with climate change considerations. King County will continue to enhance its Transfer of Development Rights (TDR) program with the goal of promoting development in urban areas. Specifically, King County will consider reduction in transportation-related emissions, sequestering of carbon, and any other climate change effects that result from the transfer of development rights. TDRs used in this way will help the County meet its greenhouse gas emissions reduction targets.

King County's Healthscape program will also continue to develop tools to measure and aim to enhance the walkability, health and climate-friendliness of the region's neighborhoods.

The King County Climate Team will continue to explore the development of “green collar” jobs in the region.

Emerging Issues in 2008

The King County Climate Team continues to research the benefits, costs and applications of sustainable materials in urban environments. In 2008, King County staff will collaborate with Arizona State University's National Center for Excellence to study how these sustainable materials can be used to reduce greenhouse gas emissions and mitigate the “urban heat island” effect caused by traditional materials.

King County Region

Energy Conservation, Efficiency, Clean Energy and Clean Fuels

(Goals 16 - 19)

Summary

The 2007 Climate Plan set the following goals: promoting a market for clean transportation fuels and technologies (**Goal 16**); fostering the regional development and use of waste-to-energy technologies (**Goal 17**); encouraging energy conservation among homes and businesses of the region (**Goal 18**); and stimulating regional development of clean distributed energy (**Goal 19**).

King County's 2007 highlighted actions in this area included: Metro Transit contract with an option to purchase up to 500 additional hybrid articulated buses, complementing its existing fleet of 213; Metro Transit purchase of 2 million gallons of biofuel grown from canola in Yakima County; the September 2007 "Clean Vehicles Now!" conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today; purchase and receipt of Fleet Division's first plug-in hybrid electric vehicle and heavy-duty hybrid-electric truck; and further establishment of the Northwest Hybrid Truck Consortium, led by King County. King County also continued to work on development of a dairy waste digester in conjunction with WSU King County Extension. In addition, the King County Greentools team continued to work with the suburban cities in King County to increase green building in their communities.

King County also joined with 20 cities of the region to create a Puget Sound Regional Green Fleet Initiative at the "Clean Vehicles Now!" conference in September 2007. The members of this initiative will meet regularly in early 2008 to develop a "green fleet standard" to help guide clean vehicle purchases by municipal fleet managers. This initiative will further support Council Ordinance 15988, adopted in December 2007.

Actions Taken in 2007

Energy Conservation and Efficiency

In 2007, King County Solid Waste Division EcoConsumer and other programs continued to promote energy conservation and other practices that reduce home and business greenhouse gas emissions (**Action 18-A**). The GreenTools team worked with staff from suburban cities to help them to incorporate green building practices in government operations and to encourage green building private residential and commercial development. King County Department of Transportation installed energy-efficient lighting in a number of its numerous facilities. As a major purchaser, King County can stimulate regional markets for such products, as demonstrated by the work of the King County Environmental Purchasing Program.

Clean Fuels and Technologies

On September 19, 2007, King County hosted the "Clean Vehicles NOW!" conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today (**Actions 16-A and**

16-B). At the conference, King County and 20 cities from the Puget Sound region launched a Puget Sound Regional Green Fleet Initiative, the purpose of which is to develop a standard for local and regional governments to employ when investing in clean vehicles. Over 500 people attended the conference, ride-and-drive and stationary exhibit.

With the similar intent of promoting development of the clean vehicle industry, King County Parks Division has begun to encourage use of hybrid vehicles and carpooling at events by offering parking fee discounts or preferred parking.

At the Clean Vehicles Now! conference, Fleet Administration Division received delivery of its first PHEV and heavy-duty hybrid truck. Also in 2007, Fleet Division continued implementing its heavy-duty hybrid truck purchasing consortium with other participating governmental agencies. This consortium consists of 14 municipalities and other governmental agencies, and is funded by a \$250,000 USEPA grant and a \$150,000 USDOT (CMAQ) grant. This funding has helped to “buy down” the marginal cost of purchasing the hybrid trucks. Several government agencies have already taken delivery of their hybrid trucks. These early purchases will yield valuable data back to the manufacturer on the daily work performance of these vehicles with the new hybrid technology. The formation of the consortium has also helped to stimulate a regional market for the clean truck technology. More information is available upon request.

King County worked to incorporate extensive recycling and composting efforts into the 12 events of the Summer 2007 Marymoor Concert series, which attracted approximately 40,000 people. Additionally for that event, King County, 103.7 The Mountain FM radio station and Puget Sound Energy teamed up to offset the greenhouse gas emissions created by the events through the creation of renewable wind energy.

Waste-to-Energy

In 2007, King County received federal funds to begin construction of a dairy waste digester. In 2008, the county will identify a site to locate the digester in the Enumclaw area and a farmer to participate in the project (**Action 17-A**).

Actions Planned for 2008

In early 2008, King County staff will continue to meet with the steering committee of the Puget Sound Regional Green Fleet Initiative, to develop a “green fleet standard” intended to help guide clean vehicle purchases by municipal fleet managers.

Building on existing efforts, the King County Climate Team is currently exploring ways to develop “green collar” jobs in the region.

King County Parks Division may also explore further opportunities to provide public outreach on King County’s climate change action and clean energy agenda, through communications and other means at its popular facilities. These activities could serve to educate the public about energy conservation practices and purchases of efficient technologies and clean fuels.

King County will also continue to collaborate with other regional institutions on plans for a hydrogen vehicle and fueling station demonstration project.

Emerging Issues in 2008

The Pacific Northwest is uniquely positioned among the regions of the United States to continue its leadership role as a center for energy conservation strategies, energy efficient technologies and clean fuels. The King County Climate Team continues to research and stay updated on the near- and long-term trends in this industry, in order to shape the most effective policies and programs possible to foster this clean energy economic development into the future.

Washington State

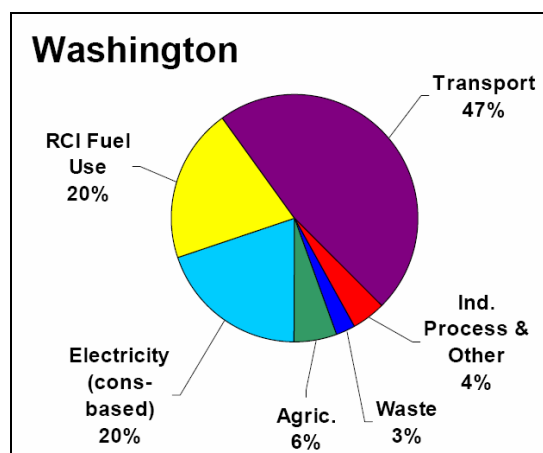
95,000,000 MTCO₂e

Table 6 and **Figure 6** describes Washington state's greenhouse gas emissions by clear emission-related sectors and in order of magnitude, to provide context for the mitigation actions outlined in this section.

Table 6: Washington State Greenhouse Gas Emissions

95,000,000 MTCO ₂ e (2005)		
Source	MTCO ₂ e	Percent
Transport	42,000,000	50
Industrial	17,640,000	21
Electricity	14,280,000	17
Other	10,080,000	12

Figure 6: Washington State Greenhouse Gas Emissions



Source: Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020. State of Washington Department of Community, Trade and Economic Development. December 2007 Available online:
http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf

Washington State (Goals 20 - 25)

Summary

The 2007 King County Climate Plan set the following goals: to work with state and local government leaders to establish a statewide climate stabilization target, meaningful near-term reduction strategies and a standardized inventory of greenhouse gas emissions (**Goals 20 and 21**); to promote statewide reduction of greenhouse gas emissions from transportation (**Goal 22**); to promote statewide use of clean fuels, energy efficiency strategies, and waste-to-energy technologies (**Goals 23 and 24**); and to support climate-friendly land use and building design practices statewide (**Goal 25**).

In support of these goals in 2007:

- King County participated in the Washington Climate Advisory Team stakeholder process and development of recommendations related to climate change mitigation and adaptation.
- King County also made other indirect impacts on statewide markets for clean fuel and clean energy in 2007, by purchasing 2 million gallons of biofuel grown from canola in Yakima, and by implementing the purchasing agreement of the Northwest Hybrid Truck Consortium.
- King County's Climate Plan and Executive Order PUT 7-10 on the Evaluation of Climate Change Impacts through SEPA have also been used as model climate change policies in other governments across the state.

In the coming year, King County staff will continue to support statewide dialogue on climate change mitigation and adaptation strategies.

Actions Taken in 2007

King County played an active role on the Washington Climate Advisory Team and staff also supported the Transportation Technical Working Group (**Actions 21-A through 25-B**).

In early 2007, in support of its goals for regional clean energy economic development, King County purchased 2 million gallons of biofuel grown from canola in Yakima County that was fertilized by biosolids from King County wastewater treatment operations. Also in 2007, King County Fleet Administration Division implemented the purchasing agreement of the Northwest Hybrid Truck Consortium. More information about that action is provided under Goal 16.

King County's Climate Plan and Executive Order PUT 7-10 on the Evaluation of Climate Change Impacts through SEPA have been used as model climate change policies in other governments across the state.

In 2007, King County submitted a letter in support of the State of California's attempts to obtain a waiver from the United States Environmental Protection Agency to implement its vehicle tailpipe standards. The status of this waiver is significant to Washington, which is among a handful of states that have passed the stricter vehicle emissions standard.

Actions Planned for 2008

King County staff will continue to support state-level dialogue on statewide strategies to reduce greenhouse gas emissions, especially from the transportation sector. In 2008, King County will also continue to support the Growth Management Act, in light of the benefits of compact development for reducing greenhouse gas emissions. King County supports incorporation of climate change as an explicit goal into the Growth Management Act in 2008.

As a founding member government of the national Cool Counties Initiative, King County will undertake a statewide organizing strategy in 2008 to recruit county governments in Washington to join the initiative. More information is available at <http://www.kingcounty.gov/coolcounties>.

King County may also explore the expansion of the Puget Sound Regional Green Fleet Initiative to other municipal governments across Washington. More information is provided under Goal 16.

Emerging Issues in 2008

In January 2008, Governor Gregoire proposed legislation that would direct the state's Department of Ecology to design a regional cap-and-trade market system for greenhouse gas emissions, require all major generators of greenhouse gases to report annually on their emissions, and create training programs for "green collar" jobs. King County supports the passage of this bill; staff will stay updated on its progress in the 2008 legislative session.

United States

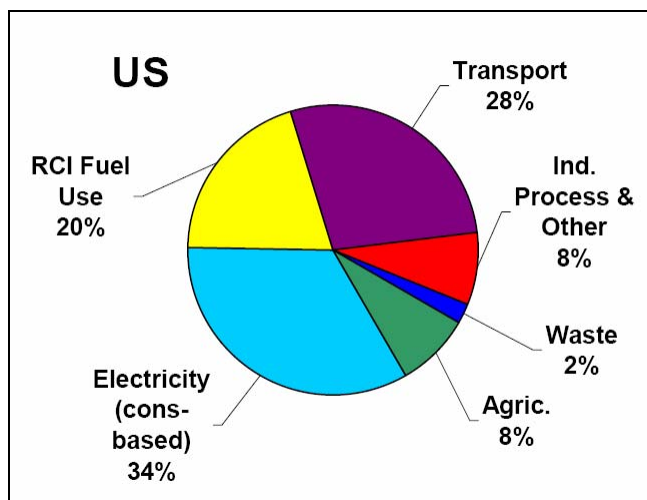
7,260,400,000 MTCO₂e

Table 7 and Figure 7 describes the United States' greenhouse gas emissions by clear emission-related sectors and in order of magnitude, to provide context for the mitigation actions outlined in this section. More information is available from the Energy Information Administration, at the following website:
<http://www.eia.doe.gov/oiaf/1605/1605a.html>.

Table 7: United States Greenhouse Gas Emissions By Sector
(As a Percentage of Total)

7,260,400,000 MTCO ₂ e		
Source	MTCO ₂ e	Percent
Electricity	2,769,000,000	39
Industrial	1,278,000,000	18
Transport	2,272,000,000	32
Other	710,000,000	10

Figure 7: United States Greenhouse Gas Emissions



Source: For the U.S. Total: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 –2005. Environmental Protection Agency. Available online:
<http://www.epa.gov/climatechange/emissions/downloads06/07ES.pdf>.

For the figure: Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020. State of Washington Department of Community, Trade and Economic Development. December 2007. Available online:
http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf.

United States (Goals 26 - 28)

Summary

The 2007 King County Climate Plan set a goal that King County would be a leader in developing federal policy solutions that slow, stop and reverse national greenhouse gas emissions **(Goal 26)**. It also set a goal that King County would serve as a resource and leading organizer for other local governments across the country on strategies for reducing greenhouse gas emissions **(Goals 27 and 28)**.

Highlights in this area for 2007 included testimony by King County Executive Ron Sims at the United States Senate Committee on the Environment and Public Works, on America's Climate Security Act (S. 2191); presentations by King County Climate Team staff in national venues; and launch of the Cool Counties Initiative in July 2007 and subsequent recruitment of counties representing 35 million Americans in total.

Actions Taken in 2007

In 2007, King County continued to support cap-and-trade legislation as an important foundation for reducing national greenhouse gas emissions. In his November 2007 testimony to the United States Senate on S. 2191, Executive Sims presented analysis indicating that even with effective "clean car" laws in place carbon dioxide passenger vehicle emissions in 2030 are still projected to be significantly above 1990 levels. In other words, projected growth of "vehicle miles traveled" would still outweigh the greenhouse gas emissions avoided by implementation of vehicle and fuel regulations. To lower transportation carbon dioxide emissions to 60 percent below 1990 levels (or 80 percent below current levels) by 2050, we must make even greater improvements in vehicles and fuels and reductions in vehicle miles traveled per capita. This testimony fully supports King County's role as a regional government provider of public transit and other alternative transportation strategies **(Actions 26-A and 26-B)**.

In 2007, King County also officially supported the State of California in its attempts to obtain a waiver from the United States Environmental Protection Agency to implement its vehicle tailpipe standards **(Action 26-C)**.

In 2007, King County staff also attended and participated actively in important events, such as the Conference of Parties held in Bali, Indonesia in December 2007, the Sundance Summit for Local Governments held in September 2007, and high-level retreats of national climate policy experts.

On July 16, 2007 at the National Association of Counties Annual Conference in Richmond, Virginia, 12 pioneering counties representing 17 million people launched Cool Counties Initiative **(Action 27-A and 28-C)**. Cool Counties seeks to marshal the resources of all 3,066 counties across the nation to address the challenges that climate change poses to our communities. Participating counties commit to four actions: reducing our own contributions to climate change through our internal operations; demonstrating regional leadership to achieve climate stabilization and protect our

communities; helping our community become climate resilient; and urging the federal government to support our efforts. King County and the Sierra Club led the effort to draft this declaration and organize support for its approval. King County will continue to serve as the lead organizing government as we build support across the nation. Since its inception, county governments representing over 35 million Americans have signed on to the declaration.

King County also continued to participate in the Urban Leaders Initiative, a “forum for leading local government officials who have demonstrated leadership on climate policy to ensure that future infrastructure and land use decisions protect the global climate and local resources” **(Action 27-B)**.

King County participated in the National Action Plan for Energy Efficiency (NAPEE), an initiative sponsored by the US Environmental Protection Agency and the US Department of Energy to increase the nation’s focus on energy efficiency as a cost-effective means to reduce climate impacts while increasing energy security. The county’s roles included: advising the NAPEE’s leadership team on the value of utilities in providing standardized billing data to customers such as King County; and leading the municipal government team of the NAPEE’s Sector Collaborative workgroup.

Actions Planned for 2008

In 2008, the King County Climate Team is also expecting to develop a policy paper in conjunction with the American Planning Association on how to incorporate climate change considerations into comprehensive planning.

King County will also continue to lead and recruit county governments to join the Cool Counties initiative, support the Climate Communities initiative, and participate in the Urban Leaders Initiative.

King County will also continue to participate in leadership of the National Action Plan for Energy Efficiency.

Emerging Issues in 2008

The importance of establishing sound United States federal climate policy as soon as possible cannot be understated. The United States and the world have a decade or less to put in place critical measures to reduce greenhouse gas emissions, in order to limit the most harmful climate change impacts of the future. At the same time, reductions must also be achieved efficiently and equitably.

In 2008, King County will continue to advocate strongly for sound federal climate policy based on market mechanisms. King County will also continue to seek opportunities to develop a regional and national “green collar” jobs industry, so that no population of our country is left out of the economic opportunities that the clean energy economy presents in the coming years.

Adaptation

Climate Science

(Goals 29-31)

Summary

The 2007 King County Climate Plan set the following goals: being a primary leader in researching, monitoring and using climate science in public policy decisions (**Goal 29**); collaborating internally and across government agencies to build resilience (**Goal 30**); and raising community awareness about climate change impacts and the need to build resilience to impacts (**Goals 30 and 31**).

Highlights of King County actions in this area in 2007 included:

- Publication of *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments* with the Climate Impacts Group at the University of Washington and ICLEI - Local Governments for Sustainability, and development of a training series on the principles of the guidebook.
- Collaboration with the National Oceanic and Atmospheric Administration and the National Academies of Science on the topic of climate change adaptation.
- Formal establishment of inter- and intra-departmental work teams to support the King County Climate Team on meeting the goals of the Climate Plan.
- Technical development of a “vulnerable facilities inventory” for divisions responsible for long-term asset management, and contribution of scientific and technical expertise on climate change in multiple venues.
- Participation in the Washington Climate Advisory Team’s stakeholder process and development of recommendations on climate change adaptation.
- Publication of a multi-stakeholder technical report on climate change regional and water supplies as part of the regional water supply planning process.
- Co-organizing of numerous events on climate change mitigation and adaptation, ranging from the Clean Vehicles Now! conference to a statewide conference on the adaptive benefits of reclaimed water.
- Support of Washington State University’s growing focus on climate change research and outreach activities.

In the coming year, King County’s scientific and technical experts will continue to be tapped for contributions to local, regional and state analysis of climate change. To meet this responsibility, the county may require greater funding for scientific and technical capacity. Also in 2008, King County will continue to develop both employee and public

events that build awareness about climate change, including an expanded training series for staff, cities and counties in this region on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*.

Actions Taken in 2007

Guidebook for Local, Regional and State Governments

King County and the Climate Impacts Group at the University of Washington co-authored *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, which was published and released by ICLEI - Local Governments for Sustainability at the Sundance Summit for Local Governments in September 2007 (**Goals 30 and 31**). The guidebook has been requested and distributed to numerous local, regional and federal government agencies across the United States, and was featured in several magazines, including *Governing Magazine* (December 2007), NOAA's Coastal Services newsletter, and the National Association of Counties newsletter. The guidebook was also profiled as the only manual of its kind in a H. John Heinz III Center for Science, Economics and the Environment report of fall 2007.

Implementation Team

In 2007, the King County Climate Plan Implementation Team (formerly known as the "adaptation team") was created to support the Executive Office-led King County Climate Team, with related interdepartmental work teams focused on meeting the goals of this Climate Plan (**Action 29-A**). King County staff from these teams participated heavily in the Washington Climate Advisory Team's stakeholder process and development of recommendations on climate change adaptation, particularly in the areas of public health and regional water supply, as members of the Preparedness and Adaptation Working Group. This team also supported the efforts of other institutions, such as Washington State University, to broaden awareness through climate change research and outreach activities. This collaboration with WSU has included a staff presentation in May 2007 at the WSU meeting establishing a university-wide team on climate change, a keynote by Executive Sims in November, and a subsequent King County - WSU roundtable to explore new project possibilities.

In 2007, the King County Climate Plan Implementation Team members provided a number of presentations on their joint workplan. Staff also participated in and supported other presentations and high-level discussions, including: Pacific Salmon Commission meetings, the Regional Water Supply Planning Process Climate Change Technical Committee, a Water Suppliers Forum, regional dialogues about how to prepare for intense storm events and the first West Coast meeting of Exloco on climate change and water. Among the highlights of this work was dialogue with the Pacific Salmon Commission to include climate change as a habitat consideration affecting Pacific Salmon Treaty goals.

Climate Change Technical Analysis

The climate change technical advisory group (**Action 29-B**) has not yet been formally established, but King County technical experts in Water and Land Resources Division continue to be in demand for contribution to scientific and technical reports, as well as

for staffing to the King County Climate Team. The 2007 work highlights of this division included **(Actions 29-C through 29-E)**:

- The technical development of a scope of work for analysis of climate change impacts to the regional wastewater treatment system, as well as a proposal for a related body of scientific work on climate change impacts to ecosystems. The product of this work will serve as a “vulnerable facilities inventory” to inform divisions responsible for long-term asset management, such as King County Wastewater Treatment Division. The creation of this project resulted from collaborative activities with Wastewater Treatment Division, which has already begun to develop and use reasonable assumptions based on work currently available from the University of Washington on sea level rise, storm surges, and tides. It is expected that this inventory report will be useful to other county agencies involved in asset management. Adjustments to this analysis will be conducted in the future as projections are updated and refined.
- Contribution with the DNRP Director’s Office Water Policy Unit to development of a report on the impacts of climate change on water supply across King, Snohomish and Pierce counties, which has further supported public utility presentations by the Everett, Seattle and Tacoma water supply systems with regard to their future supplies.
- Contribution to the establishment of the new Puget Sound Partnership, which will include climate change as a consideration in its scope of work for recovering the quality of Puget Sound waters and coastline.
- Written materials (including a letter of support) proposing creation of a statewide groundwater monitoring and assessment program, currently being considered by the Legislature.
- Technical support of the development of Executive Order 7-10 on Evaluation of Climate Change Impacts through SEPA.

WLRD also continues to incorporate climate change considerations into: its existing monitoring activities in Puget Sound, major water bodies and groundwater; modeling of climate change impacts on Vashon Island water resources; and habitat observation activities.

Actions Planned in 2008

Guidebook and Public Awareness

In 2008, King County will continue to develop both employee and public events that build climate change awareness, including a training series for staff, cities and counties in this region on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*. For instance, discussions are currently underway in early 2008 for the “vulnerable facilities inventory” report to play a central role as a case study in the King County guidebook curriculum, and also for technical staff to work with the King County Roads Division on applying these projections to near-term infrastructure decisions, in the context of an internal training.

Recently, the King County Climate Team also applied for a US Environmental Protection Agency grant to expand this training to cities and counties across Washington State. If funded, a first event of this nature is expected to focus on public health agencies across the state. Throughout these trainings, King County staff will explore how to develop more specific ways to measure climate change resilience to regional impacts such as heat stress, flooding, water supply constraints and sea level rise. These discussions will build on existing materials in the guidebook, and may lead to the development of case studies that further illustrate guidebook concepts.

The King County Implementation Team also expects to continue participating in ongoing conversations of the Washington Climate Advisory Team, and its technical committees, as well as collaborating with utilities and other government agencies in developing regional adaptation strategies. For instance, in 2008 the King County Water Policy Unit and other DNRP staff expect to produce a synthesis report from the regional water planning process that will identify new challenges and opportunities in consideration of climate change impacts to regional water supplies. Likewise, the King County - WSU collaboration will continue to support outreach events and trainings.

Climate Change Technical Analysis

In 2008, King County Water and Land Resources Division will evaluate its capacity to establish a climate change technical advisory group. If funded, the staff of this group will: serve as an information clearinghouse; provide projections (i.e., regarding increases in sea level rise, changes in temperature change and impacts to stream flows) so that decisions are based on consistent information; and inform policy and regulatory decision making with the latest science. In the meantime, WLRD staff will continue their role in developing research and analysis and communications documents that improve the county's understanding about climate change impacts. One potential additional activity for WLRD in 2008 is proposed staff support of the establishment of a regional team of experts and infrastructure to conduct on-the-ground marine, terrestrial and atmospheric research on our regional greenhouse gas emissions. When possible, King County will leverage its existing monitoring capacity in support of this new effort. See the text under Action 9-C for more information.

The King County Climate Team is also exploring potential research with Arizona State University on "urban heat islands" and the applications of sustainable materials in the urban built environment to build resilience and reduce the negative effects of increased summer heat due to climate change.

Emerging Issues in 2008

Per the recommendations of the Washington Preparedness and Adaptation Work Group, there is likely to be an analysis of state water laws and policies and their ability to address projected climate change impacts and related conflicts, which may be folded into an anticipated package of water legislation for the 2009 state legislative session. King County and other agencies have also perceived a need for additional research to be conducted on the possible impacts of more frequent and intense storm events, such as this region has experienced for the past two winter seasons. Finally, technical work

being undertaken regarding decline in the number of Lake Sammamish kokanee salmon will also consider climate change impacts.

In 2008, on these and other topics, King County's scientific and technical experts will continue to be tapped for contributions to local, regional and state analysis of climate change. Meeting this responsibility may require greater funding support for necessary scientific and technical capacity.

Public Health, Safety and Emergency Preparedness

(Goals 32-33)

Summary

The 2007 King County Climate Plan set the following goals: Seattle - King County Public Health and other King County departments will be leaders in protecting public health from climate change impacts (**Goal 32**); and King County will help the region to understand, limit the risks of and minimize the damage of natural hazards associated with climate change impacts (**Goal 33**). In 2007, highlights of King County's work in this area included:

- Support of the Washington Climate Advisory Team Preparedness and Adaptation Work Group's discussion of the impacts of climate change to public health by Seattle-King County Department of Public Health staff.
- Steps that will protect public health and safety in the long term, such as adoption of the King County Flood Control Zone District, regional dialogue about how to prepare for intense storm events, and continued discussions with the Acting Food Policy Council of Seattle and King County to identify food system co-benefits for public health and environmental quality.

In the coming year, the King County Climate Team will explore research on urban heat impacts to health and society, with a focus on vulnerable populations; develop a training series for public health agencies across Washington State on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*; and continue to participate in public awareness initiatives about climate change and health on regional, state and national levels.

Actions Taken in 2007

Public health was among the focus areas of the Preparation and Adaptation Working Groups convened by the Governor to support the Washington Climate Advisory Team. The health working group had representation and participation from research and academia experts, social scientists, and state and local public health practitioners, including the Seattle-King County Public Health Department. Staff supported this working group's identification, analysis, and development of corresponding adaptation recommendations (**Action 32-A**). The Climate Impacts Group also worked closely with the health working group to identify key impacts on public health.

Concurrently, the King County Climate Team has had a continuous dialogue with public health and emergency preparedness managers. With heightened awareness and exchange of information about the impacts of climate change on public health, King County will continue to explore potential research with outside institutions about this topic.

King County is also in conversations with experts and other municipal governments across the country on the creation of a standard on preparedness and resilience to extreme heat events in urban areas. This standard would be illustrated in a series of case studies and trainings based on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, which was co-authored by King County and the Climate Impacts Group and was published by ICLEI – Local Governments for Sustainability.

Additional important actions taken in 2007 by King County in support of public health, safety and emergency preparedness included:

- Adoption of the King County Flood Control Zone District, which will enable the county to rebuild the regional levee system and consequently protect public health, safety, and property from the more intense and frequent winter floods projected for our region. See Action 35-A for more information.
- Continued participation by staff members in discussions about regional plans to prepare for intense storm events.
- Incorporation of climate change considerations into review of water and sewer general plans by the Utilities Technical Review Committee.
- Continued efforts by the Acting Food Policy Council of Seattle and King County to raise public awareness of climate change impacts to our regional food system.

Actions Planned for 2008

In early 2008, the King County Climate Team submitted a grant application for funding from the United States Environmental Protection Agency to support training series for the public health agencies of Washington State based on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*.

King County will continue to explore research on urban heat impacts to health and society, with focus on vulnerable populations, and will further consider potential participation in the creation of a standard on preparedness and resilience to extreme heat events in urban areas.

King County will further seek to participate in and support regional, state and national events linking climate change impacts, mitigation co-benefits, and public health.

The draft King County Comprehensive Plan update for 2008 includes new policies in the areas of public health and climate change.

Emerging Issues in 2008

In 2008, there are increasing opportunities to partner with national and local non-profit organizations to develop research on climate change and public health. One such avenue will be building on participation begun in early 2007 with the Climate Change Workgroup of the National Association of County and City Health Officials (NACCHO). This workgroup is raising awareness among public health officials and professionals about the need to become involved in climate change mitigation and adaptation, both within the profession and externally with those sectors who are developing mitigation and adaptation strategies. One effort of the workgroup initiated in 2007 and carrying through to 2008 is the distribution of a survey about preparedness and adaptation among local health departments. Survey results are expected to be helpful for integrating the concepts of vulnerability, resiliency, and adaptation into core public health practices (e.g., surveillance, prevention, injury reduction).

Also in 2008, climate change will be the theme for both the American Public Health Association's National Public Health Week and the World Health Organization's Global Health Day. These major events present opportunities for King County to communicate its powerful messages on the intersecting issues of public health and climate change.

Land Use, Buildings and Transportation Infrastructure

(Goals 34 - 40)

Summary

The 2007 Climate Plan set the following goals: incorporating considerations of climate change preparedness into all major investments in land and infrastructure **(Goal 34)**; increasing regional awareness about and reducing risks of fall and winter flooding associated with climate change **(Goal 35)**; helping the region to understand and reduce the risk of possible coastal flooding associated with climate change **(Goal 36)**; adapting the operation and maintenance of parks and trails to climate change impacts in the most cost-effective way possible **(Goal 37)**; promoting understanding of the value of green building practices to climate change resilience and public health in the built environment **(Goal 38)**; identifying, preserving and protecting significant historic and archaeological properties in the region that are vulnerable to climate change impacts **(Goal 39)**; and protecting the integrity and safe operation of regional transportation infrastructure from climate change impacts **(Goal 40)**.

Highlights of King County work in this area in 2007 included:

- Incorporation of climate change impacts and preparedness considerations into the 2008 public review draft of the King County Comprehensive Plan.
- Adoption of the King County Flood Control Zone District, consistent with the King County Flood Hazard Management Plan. The creation of this district will enable the county to rebuild the regional levee system and consequently protect public health, safety and property from the more intense and frequent winter floods that our region is projected to experience in the future.

- Incorporation of climate change considerations into the proposed updates of the King County Green Building Ordinance.

In the coming year, the 2008 update to the King County Comprehensive Plan will be transmitted to the King County Council for adoption; the Flood Hazard Management Plan will continue to be implemented; green building principles and sustainable materials will be used in adaptive strategies for buildings, parks and infrastructure; and several King County divisions will pilot a training series on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*. Throughout these activities King County will also continue to raise public awareness about climate change impacts on land use, property and public infrastructure.

Actions Taken in 2007

In the Executive Orders of March 2006 and the Council Motion of October 2006, the Executive and Council directed that King County further incorporate policies and text related to impacts of climate change into the King County Comprehensive Plan and relevant emergency and long-term plans for flood hazard management. Consistent with that guidance, King County staff drafted climate change assessment, mitigation, and adaptation text and policies for inclusion in the draft 2008 Comprehensive Plan Update, which will be transmitted to the Council by March 1, 2008 (**Action 34-A**). The King County Council adopted the Flood Hazard Management Plan and approved creation of the King County Flood Control Zone District (**Action 35-A**). As a function of this district, a countywide fee will be assessed at \$0.10 per \$1,000 of property value, to support the funding of key flood hazard management projects. Implementation of the plan, its capital projects and increased emergency preparedness is underway.

In 2007 the King County Green Building Team drafted the renewed Green Building Ordinance, which incorporates climate change concerns. The ordinance will lay the foundation for the King County Climate Team to explore further research on the adaptive benefits (e.g., natural cooling) of green building practices and sustainable development materials.

Actions Planned for 2008

In 2008, King County science and technical staff in Water and Land Resources Division will continue to work with researchers at the Climate Impacts Group to assess climate change impacts on precipitation patterns and sea level rise. This information will also be provided to the staff of the King County Office of Emergency Management.

In 2008, the King County Comprehensive Plan Update, including text and policies on climate change assessment, mitigation, adaptation, and collaboration, will be transmitted to the King County Council for adoption. The Flood Hazard Management Plan will also continue to be implemented.

The King County Climate Team will continue to explore research on the adaptive benefits of green building principles and sustainable materials in buildings, parks, natural landscaping and infrastructure.

Several King County divisions are considering a pilot training series on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*. This potential pilot training is considered to be one way to use the body of knowledge being developed by Water and Land Resources Division and Wastewater Treatment Division on climate change impacts (**Actions 40-A and 40-B**). These divisions will also benefit from the creation of the climate change technical advisory group in Water and Land Resources Division.

Throughout these activities King County will also continue to raise public awareness about climate change impacts to land use, property and public infrastructure.

Emerging Issues in 2008

King County staff will continue to seek updated information about climate change impacts to precipitation and sea level rise, as well as about the use of sustainable materials to reduce heat impacts in the built environment.

Another emerging concern in 2008 will be the need to incorporate flooding impacts information into water supply planning for systems that operate storage reservoirs and have the ability to affect river flows significantly.

Surface Water Management, Freshwater Quality and Water Supply

(Goals 41 - 46)

SUMMARY

The 2007 King County Climate Plan set the following goals: working to understand and share information about climate change impacts to safe and reliable drinking water supplies, as well as protection of fish and wildlife habitat conditions (**Goal 41**); working to ensure coordination and consideration of climate change impacts in region's management of water supply and quality, fish habitat, wastewater and surface water (**Goal 42**); maximizing development and use of reclaimed water and other water reuse applications from King County's wastewater system, as a means to build resilience to climate change (**Goal 43**); building cost-effective operational resilience to climate change impacts in wastewater treatment operations and stormwater management (**Goals 44 and 45**); and helping to ensure regional freshwater quality for drinking, irrigation and fish and wildlife (**Goal 46**).

Highlights of this work in 2007 included:

- Department of Natural Resources and Parks Water Policy Unit staff support of the United States Environmental Protection Agency Region X, Washington Climate Advisory Team Preparedness and Adaptation Work Group, the Water Suppliers Forum, the Puget Sound Partnership and the Pacific Salmon Commission on consideration of the impacts of climate

change to regional water supply, as well as development of corresponding recommendations.

- Incorporation of water supply climate change concerns into the review draft of the 2008 update to the King County Comprehensive Plan.
- Continued leadership of the Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, which provides climate change information to water utilities, has produced several technical reports on this topic, and has provided a final consensus report in December addressing likely impacts to instream and out-of-stream water supplies.
- Co-sponsorship with the State of Washington on a reclaimed water conference, completion of a reclaimed water feasibility study final report in the first quarter of 2008, and initiation of a Reclaimed Water Comprehensive Plan.
- Development of a scope of work for a “vulnerable facilities inventory” report to Wastewater Treatment Division, to be completed in the first quarter of 2008.
- Received grant funding from the State Department of Ecology to conduct research and analyze the effectiveness of stormwater drainage system retrofits. This work would include using low impact development and other whole system drainage improvements, and will begin in the Juanita Creek Basin; it is being done as a pilot to inform development of the Puget Sound Partnership’s action agenda and aims to serve as a pilot that can direct basin-wide retrofits for the region. The Juanita Creek Basin was chosen because it contains older development, built with little or no stormwater drainage controls or requirements in place.

In the coming year, King County expects to continue to support federal and state agency discussions on water policy, explore the development of a King County instream flow work group, continue work on a Reclaimed Water Comprehensive Plan, incorporate climate change issues more effectively into individual water supply plans, and further consider how to build resilience to climate change impacts on water supply and quality.

Actions Taken in 2007

In 2007, King County staff supported other agencies in their water policy discussions, including:

- United States EPA Region X discussions of regional strategies to build resilience to water supply impacts
- Washington Climate Advisory Team Preparedness and Adaptation Work Group discussions of climate change impacts to water
- Water Suppliers Forum dialogue on greenhouse gas emissions analysis
- Puget Sound Partnership
- Pacific Salmon Commission

King County staff incorporated climate change considerations regarding water supply into the draft 2008 update of the Comprehensive Plan. The draft Comprehensive Plan update clearly identifies that water and sewer plan reviews should consider climate change impacts in the future.

Staff also continued to participate in the Regional Water Supply Planning Process, and supported the work of Reclaimed Water, Climate Change, Small Water Systems and other Technical Committees, which can be used in future planning efforts of King County and water utilities. For instance, in December 2007, the Climate Change Technical Committee of the Regional Water Supply Planning Process produced its final report on impacts to water from climate change (**Actions 41-B, 42-A, 42-C**). The report includes forecasts of streamflow and temperature changes to the year 2075, and contains technical information on related subjects, available online. The report forecasts substantial reductions in summer stream flows by 2075, and substantial increases in winter flows, with potential impacts to fish habitat and flood management. The streamflow information has been used by the region's three major utilities to forecast impacts on their existing system yields, and will also be used by the committees in developing information on regional water demand and supply. Also in December 2007, the Tributary Streams and Source Exchange Technical Committees of this process produced a report on possible approaches to "pausing" use of groundwater supplies near streams with instream flow problems in order to identify opportunities to address climate change impacts, such as low instream flows.

King County scientific staff are continuing to work with researchers to assess climate change impacts to instream flows in major rivers (**Action 41-A**).

In 2007, King County joined with the State Department of Ecology to co-sponsor a statewide reclaimed water conference that focused attention on benefits of reclaimed water for water supply and habitat enhancement and highlighted support for reclaimed water from state and regional leaders. King County completed a feasibility study on reclaimed water in King County region in the first quarter of 2008, which will inform decision makers about the possible future uses, benefits and costs of reclaimed water (**Action 43-C**). This study included estimates of nonpotable uses of reclaimed water (**Action 43-B**). King County also initiated production of a Reclaimed Water Comprehensive Plan, with draft completion projected for the end of 2009 (**Action 43-D**).

Regarding operational resilience of King County's wastewater treatment system, staff initiated a scope of work for a "vulnerable facilities inventory" report, to be completed in the first quarter of 2008. This report should also benefit other managers of long-term assets. It has been used as a focus point for presentations on *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, and will be similarly highlighted in a training series on the guidebook.

Actions Planned for 2008

In 2008, King County Water Policy Unit will: continue to support the Washington Climate Advisory Team and its technical committees; develop a proposed workplan for instream

flow; complete a “synthesis” report on information compiled by the regional water supply planning process, and identify gaps and needed information on such topics as climate change impacts; participate in the development of elements of the Puget Sound Partnership’s Action Agenda that have water and climate change components; finalize and implement climate change components for water and sewer plan reviews, including those identified in the adopted 2008 Comprehensive Plan; initiate a sub-regional water planning process with the Cascade Water Alliance that will include possible climate change impacts to water supplies and demand patterns; help develop a broader water strategy for King County that will address specific climate change impacts for agricultural water supplies and groundwater resources; and provide information from all the technical committee reports of the Regional Water Supply Planning Process regarding climate change and water resource management.

Wastewater Treatment Division will continue to expand reclaimed water use as an adaptive strategy by: extending necessary contracts, developing demonstration projects, working directly with industries and water purveyors for use of reclaimed water from Brightwater; evaluating use of Brightwater reclaimed water for Sammamish Valley farmers; participating in state workgroups and technical committees focused on reducing barriers to further use of reclaimed water in a climate changed environment; participating in ongoing regional water supply planning activities related to use of reclaimed water; supporting the work of the UTRC in including climate change concepts in water and sewer planning; and undertaking other relevant activities. The Reclaimed Water Comprehensive Plan is expected to be finished in 2010.

Staff will continue to build resilience in the wastewater treatment operations of King County by: collaborating to develop assumptions for sea level rise and temperature change; conducting the vulnerable facilities inventory report; and developing climate change response strategies for the vulnerabilities identified.

Emerging Issues in 2008

Emerging issues in 2008 include: need for funding to produce the science necessary to support critical documents such as the vulnerable facilities inventory report; need for further research on the impacts of climate change to stream flows, surface water and groundwater, vis-à-vis the possibility of increasing use of groundwater supplies; evaluation of existing management structures to adapt to new water management challenges; and need for increased understanding of possible changes in precipitation and storm intensity to fully implement adaptive strategies in wastewater and stormwater management.

Economic, Agricultural and Forestry Impacts

(Goals 47-50)

SUMMARY

The 2007 King County Climate Plan set the following goals: limit financial damage and economic consequences of climate change to the region (**Goal 47**); building resilience to climate change in the areas of forest protection and forestry, agriculture and energy

(Goals 48 – 50); and developing climate change mitigation strategies in forestry and agriculture **(Goals 48 – 49)**. Highlights of this work in 2007 included:

- Research on development of “green collar” jobs across the U.S.
- Support to farmers affected by flooding
- Continued educational series and events organized by Washington State University on climate change, forestry and agriculture.
- Enhancements to the Puget Sound Fresh program, such as the addition of the Eat Local Thanksgiving initiative.
- Planning of bioenergy projects, such as the dairy waste digester in Enumclaw.

In 2008, King County and Washington State University will continue to collaborate on clean energy projects and educational outreach on forestry, agriculture and climate change.

Actions Taken in 2007

In 2007 the King County Climate Team researched ways to develop “green collar” jobs in the U.S., such as the Oakland Green Jobs Corps (**Action 47-A**, new action), which is aimed at reducing economic disparities in the region through providing opportunities for low-income and at-risk communities to be trained in jobs in the emerging clean energy economy.

King County has worked closely with Washington State University on learning about climate change impacts to forestry and agriculture (e.g., weeds, diseases and pests) and on developing both mitigation and adaptation strategies in these areas. Climate change impacts information is being incorporated into stewardship classes provided by Washington State University, especially focusing on promotion of healthy forests and fire prevention awareness and planning (**Action 48-B**). Washington State University also hosted the 2008 Harvest Farm Tour Celebration, which comprised about 7,000 farm visits.

In 2007, King County continued to support and enhance the Puget Sound Fresh Program. For more information about this and the Eat Local Thanksgiving initiative launched in 2007, see Action 13-B.

King County also convened the Snoqualmie Farm / Flood Task Force to address flooding impacts to farm livelihoods. A report from the Task Force will be transmitted to the King County Council in February 2008. County staff will also be working to evaluate opportunities to address flooding and agricultural water supplies in a climate change context.

King County staff drafted text and policies related to the impacts of climate change on forestry and agriculture for inclusion in the 2008 Comprehensive Plan Update, which will be transmitted to the County Council by March 1, 2008.

Actions Planned for 2008

King County will continue its collaborations on outreach with Washington State University, paying particular attention to the issues of flooding of farms and forest fires, as well as development of clean energy projects. The Executive will transmit the draft 2008 King County Comprehensive Plan update, including new text and policies related to climate change impacts on agriculture and forestry.

King County will also work to create an inventory of its public outreach opportunities into which climate change information can be incorporated.

Emerging Issues of 2008

It is likely that new information will become available about climate change impacts to agriculture and forestry, such as the frequency and intensity of flooding and forest fires.

Biodiversity and Ecosystems

(Goals 51-52)

SUMMARY

The 2007 King County Climate Plan set the following goals: supporting the resilience to climate change impacts of salmon, fish, wildlife, habitat conditions and biodiversity (**Goal 51**); and protecting the unique, productive and diverse marine environment of the region from climate change impacts (**Goal 52**).

Actions taken in this area in 2007 included support of the establishment of the Puget Sound Partnership, as well as continued work with researchers to assess climate change impacts on temperature, precipitation and streamflow, as they affect biodiversity. Water and Land Resources Division staff have prepared a major report assessing biodiversity in King County, as well as other materials on climate change and ecosystems in the region.

Actions Taken in 2007

In 2007, King County supported establishment of the Puget Sound Partnership, a state agency created by the Washington State Legislature in 2007. The Partnership works collaboratively with all levels of government, tribes, businesses and citizen groups in its charge to lead and coordinate efforts to protect and restore Puget Sound by 2020. In light of the Partnership's work to identify and assign priorities to actions needed to get that goal, King County will continue to offer information about climate change impacts to Puget Sound ecosystems.

In 2007, King County Water and Land Resources Division staff worked with researchers at the University of Washington and other institutions to assess change impacts on temperature, precipitation, and streamflow (**Action 51-A**). Science section staff also prepared a report assessing biodiversity in King County.

Water and Land Resources Division staff continued to review and assess long-term water quality trends in Puget Sound and presented the paper "Trends in Central Puget Sound Dissolved Oxygen Levels" at the 'Impact of Climate Change on Coastal Biogeochemistry' session of the 2007 Estuarine Research Federation Conference.

King County staff drafted new text and policies related to climate change and biodiversity for inclusion in the Environment Chapter of the King County Comprehensive Plan Update as part of the 2008 Update, which will be transmitted to the County Council by March 1, 2008.

Actions Planned in 2008

Data collection and monitoring of biodiversity will continue to occur in Puget Sound in 2008. Scientists in King County Water and Land Resources Division will continue to work on assembling and reviewing existing scientific information—data, research

literature, reports, and reviews—of current and past climate change effects, ecological signals of climate change, and predicted effects in the Pacific Northwest.

The Executive will transmit the draft 2008 King County Comprehensive Plan update, including new text and policies related to climate change and biodiversity.

Emerging Issues in 2008

Climate change poses a serious threat to biodiversity, especially in marine ecosystems. King County will continue to track emerging research on climate change impacts to Puget Sound, regional fisheries and biodiversity, and will evaluate existing monitoring programs to determine if additional biodiversity monitoring is needed as new information becomes available.

Performance Measurement (Goal 53)

Summary

The 2007 King County Climate Plan set a goal of collaborating with local, regional and national stakeholders and experts to measure the effectiveness of climate change mitigation and adaptation (**Goal 53**). Actions in this area in 2007 included:

- Continued development of the Chicago Climate Exchange inventory and related credits for public transit service provided by King County.
- Proposal of a regional “green fleet standard” by the Puget Sound Regional Green Fleet Initiative, launched at King County’s Clean Vehicles Now! conference in September 2007.
- Proposal of a series of case studies and standards of regional resilience to impacts such as urban heat.

In the coming year, King County will continue to work on bringing these action items to completion.

Actions Taken in 2007

In 2007 King County's year 2000 gasoline, diesel, natural gas, heating oil, and steam usage was submitted to the Chicago Climate Exchange to create the baseline for the required emissions reduction schedule. For this purpose, King County staff formed an interdepartmental work team to collect 2000 energy usage data. This group will also begin the task of assembling 2007 usage information in early 2008. King County also participated in the Chicago Climate Exchange annual meeting. Staff members continue to participate in the exchange's Rules Committee, and are working to propose a market credit and criteria for regional public transit providers.

King County made a straw proposal to the newly formed Puget Sound Regional Green Fleet Initiative, for a “green fleet standard” to guide municipal fleet managers in their investments in clean vehicles.

King County also began initial planning calls for a series of case studies and a potential regional resilience standard in the area of human health and heat impacts.

Actions Planned for 2008

During the spring of 2008, updated 2006 government (all sources) and regional GHG inventories will be completed.

Work will continue on the Puget Sound Regional Green Fleet Initiative in 2008, with a product to be completed by summer 2008.

King County will further explore the use of GIS to map regional greenhouse gas emissions and develop a potential “resilience map” for the region.

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Further exploratory conversations will be held to determine whether King County will develop a climate change resilience standard and series of illustrative case studies in the area of heat and health preparedness.

In the context of training events related to the Preparing for Climate Change guidebook, King County will also work with ICLEI - Local Governments for Sustainability and other institutions to continue improving “measures of resilience” to climate change impacts.

Emerging Issues in 2008

In the long term, the King County Climate Team intends to include electricity usage in the county’s 2000 Chicago Climate Exchange baseline and responsibilities.

There are also opportunities to use NASA data from the “100 Cities” project at Arizona State University, which King County GIS will continue to track for future action.

Public Outreach and Tools for Other Governments

This section provides a digest of information on public outreach activities undertaken and planned by King County on the topics of reducing greenhouse gas emissions and protecting public health, property and natural resources from climate change impacts. Information about these events can also be found throughout the Mitigation and Adaptation sections of this report.

In 2007, highlights of King County's public outreach activities, events and tools provided to other governments included:

- Publication of *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, which was co-authored with the Climate Impacts Group at the University of Washington in association with ICLEI - Local Governments for Sustainability, and has become the basis of trainings to governments in King County, the U.S. and Canada. This guidebook is online at: <http://www.cses.washington.edu/cig/fpt/planning/guidebook/gateway.php>
- Launch of the Cool Counties coalition of U.S. county governments with the Sierra Club in July 2007. More online at: <http://www.kingcounty.gov/exec/coolcounties>
- The King County GreenTools CD-ROM, a toolkit and case study series for the creation of green building programs in municipal governments, which was released to suburban cities of King County in June 2007, and has since been the basis of trainings. The toolkit can be found online at: <http://www.metrokc.gov/dnrp/swd/greenbuilding/program/toolkit.asp>
- The September 2007 Clean Vehicles Now! conference, which emphasized the importance of investing in clean vehicle fleets and raised awareness about the clean technologies and fuels available today. Twenty municipal governments launched Puget Sound Regional Green Fleet Initiative, which was launched at the conference. More online at: <http://www.metrokc.gov/exec/cleanvehiclesnow/principles.aspx>.
- Incorporation of extensive recycling and composting efforts into the 12 events of the Marymoor Concert series, which attracted approximately 40,000 people, as well as collaboration with 103.7 The Mountain FM radio station and Puget Sound Energy to offset event-related greenhouse gas emissions by funding the generation of renewable wind energy.
- Free King County Metro Transit bus use on Earth Day 2007.

These events and collaborations underscore the continued role that King County can and must play in collective action to reduce global greenhouse gas emissions and prepare for climate change impacts.

Appendix

Goals and Actions of the 2007 King County Climate Plan

Goal		Action	
1	King County will achieve a climate stabilization target in government operations by reducing greenhouse gas emissions 80 percent below current levels by 2050.	A	Based on King County Executive Orders PUT 7-5 through 7-8 on Global Warming Preparedness, King County Council Motion 12362, and the King County Energy Plan, King County will set an internal timetable to achieve the climate stabilization target in its operations.
2	King County will be a leader in greenhouse gas emissions accounting and target-setting for reduction of operational greenhouse gas emissions.	A	King County will meet its Chicago Climate Exchange operational greenhouse gas emissions reduction target of 6 percent below baseline year 2000 emissions by the year 2010.
		B	King County will complete and update its greenhouse gas emissions inventory on a regular basis using established greenhouse gas emissions accounting protocols.
		C	King County will seek to assess upstream, on-site and downstream greenhouse gas emissions for major capital projects.
3	King County will promote the use of climate-friendly modes of transportation by King County employees.	A	King County will continue to offer transportation benefits to all eligible employees.
		B	<i>NEW: King County departments and divisions will seek to reduce greenhouse gas emissions from employee work-related driving.</i>
4	King County will implement the 2007 King County Energy Plan.	A	Refer to the Energy Plan for specific actions
5	King County will be a leader in the use of waste-to-energy and other technologies that reduce operational methane emissions.	A	King County will continue to minimize methane emissions by maximizing use of best practice landfill management and waste-to-energy technologies.

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Goal		Action	
6	King County will be a leader in the use of transportation fuels and technologies that reduce operational greenhouse gas emissions from its fleets (both transit and non-transit).	A	King County will maximize the use of hybrid-electric, electric and other clean transportation technologies in its fleets (both transit and non-transit).
		B	King County will maximize the use of clean transportation fuels in its fleets (both transit and non-transit).
		C	King County will implement demonstration projects that use electric and hybrid-electric transportation technologies and biofuels, hydrogen, and other clean transportation fuels, to showcase new applications for both public and private sector.
		D	King County will purchase locally-produced energy sources when available and financially feasible.
		E	King County will seek local and federal support to expand the use of alternative fuels and clean energy technologies in transportation.
		F	King County departments will research, evaluate and report to the Executive and Council on best practices, innovations, trends and developments in transportation fuels and technologies that reduce operational greenhouse gas emissions.
7	King County will continue to reduce greenhouse gas emissions from its buildings and infrastructure investments through climate-friendly design, development, use and demolition.	A	King County departments will work together to renew the King County Green Building Ordinance, seeking new opportunities to reduce operational greenhouse gas emissions.
		B	King County will develop a concept paper on how to account for greenhouse gas emissions voluntarily into cost-benefit evaluations of county capital projects.
		C	King County will develop written guidelines and training to facilitate more consistent and effective incorporation of green building measures into infrastructure projects.
8	King County will be a leader in the development and use of technologies, materials and waste reduction practices that reduce operational greenhouse gas emissions.	A	King County will continue to implement construction projects that demonstrate higher percentages of cement substitutes.
		B	King County staff will research, evaluate and report to the Executive and Council on best practices, innovations, trends and developments in waste-to-energy, climate-friendly materials, and waste reduction practices, as relevant to greenhouse gas emissions reduction.

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Goal		Action	
9	King County will work with federal, state and local governments and leaders to achieve a climate stabilization target for the region by reducing greenhouse gas emissions to 80 percent below current levels by 2050.	A	In 2007, King County will organize efforts to develop regional consensus on a target year by which to stop growth of regional greenhouse gas emissions.
		B	King County will collaborate with federal, state and local partners to develop a blueprint for near-, mid-, and long-term regional reductions, with clear and accountable benchmarks and timetables.
		C	King County will take the lead in organizing efforts to standardize regional greenhouse gas emissions calculations.
10	King County will expand and encourage use of alternative modes of transportation such as public transit, carpooling, car-sharing, bicycle and pedestrian trails, sidewalks and non-motorized travel.	A	King County will provide and promote the use of increased and improved public transit service.
		B	King County will continue to provide and promote the use of bicycle and pedestrian trails and sidewalks, through capital projects and strategic partnerships.
		C	King County will provide and promote use of commute trip reduction programs, ridesharing, carpooling and car-sharing, across the region and in its workforce.
11	King County will promote greenhouse gas accountability and reduction of greenhouse gas emissions in regional transportation infrastructure investments.	A	King County will work with local and state government to account for greenhouse gas emissions in evaluations of land use and regional transportation infrastructure investments.
		B	King County will work with government partners to include smart transit investments in regional transportation infrastructure.
12	King County will work with federal, state and local governments to develop a system of congestion pricing and other pricing mechanisms on regional roads.	A	King County will work with government partners to evaluate and establish best-practice congestion pricing on regional roads.
		B	King County will implement a "Pay-As-You-Drive" vehicle insurance demonstration project, and will expand it as additional funding becomes available.
		A	King County will continue to work with local governments and the Puget Sound Regional Council to promote growth in designated, transit-oriented urban areas of the county.
		B	King County will continue to promote understanding of the importance of agricultural lands and a healthy agricultural economy to reducing greenhouse gas emissions.
		C	King County will continue to promote understanding of the importance of healthy forests to reducing greenhouse gas emissions.

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Goal		Action	
13	King County will continue to promote land use and transportation patterns that foster healthy and climate-friendly community design and healthy agricultural and forest economies.	A	King County will continue to work with local governments and the Puget Sound Regional Council to promote growth in designated, transit-oriented urban areas of the county.
		B	King County will continue to promote understanding of the importance of agricultural lands and a healthy agricultural economy to reducing greenhouse gas emissions.
		C	King County will continue to promote understanding of the importance of healthy forests to reducing greenhouse gas emissions.
14	King County will promote design and construction practices that help to reduce greenhouse gas emissions from residential, commercial and other facilities.	A	King County will develop a toolkit of resources that can facilitate adoption of green building policies and programs by suburban cities.
		B	King County will continue to foster local and regional partnerships to increase green building market share and awareness across the development community and county residents.
15	King County will work with major regional emitters in industry and materials production to achieve reduction targets.	A	King County will work with industry to foster the use of cement substitutes in regional construction projects.
16	King County will seek to foster broader regional use of renewable fuels and efficient transportation technologies.	A	King County will collaborate with other governments and businesses to purchase and use clean and renewable fuels and efficient transportation technologies.
		B	King County staff will research, evaluate and report to the Executive and Council on best practices, innovations, trends and developments in regional travel patterns, renewable fuel use and efficient transportation technologies.
17	King County will foster the regional development and use of waste-to-energy technologies, waste reduction and climate-friendly materials.	A	King County will promote regional development and use of new waste-to-energy technologies, waste reduction and climate-friendly materials.
18	King County will promote energy conservation among businesses and residents as a means to reduce regional greenhouse gas emissions.	A	Based on its own experience, King County will raise regional awareness about easy ways to conserve energy and reduce regional greenhouse gas emissions.
19	King County will foster the development of clean, distributed energy in the region.	A	King County will invest in demonstration projects of energy technologies that are conducive to a distributed system.

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Goal		Action	
20	King County will work with state, federal and local governments and leaders to establish a statewide climate stabilization target with meaningful near-term reductions in greenhouse gas emissions.		<i>NEW: King County staff will support the Washington State Climate Advisory Team on the development of mitigation strategies.</i>
21	King County will work with state, federal and local governments and leaders to establish a statewide standardized inventory of greenhouse gas emissions.	A	King County will work with state and local government and leaders to promote statewide standardization of greenhouse gas emissions calculations.
22	King County will work to promote statewide reduction of greenhouse gas emissions from the transportation sector.	A	King County will work with state and local government to account for greenhouse emissions in evaluations of state and regional transportation infrastructure projects, and will work to include smart transit investments in regional transportation infrastructure.
23	King County will work to promote statewide clean fuel and waste-to-energy development and use.	A	<i>NEW: King County staff will support the Washington State Climate Advisory Team on the development of mitigation strategies.</i>
24	King County will work to promote statewide reduction of greenhouse gas emissions through the use of renewable energy and energy efficiency.	A	King County will continue to promote accountability for greenhouse gas emissions from electricity production.
25	King County will support climate-friendly land use and building design practices at the state level.	A	King County will work to promote sequestration of greenhouse gas emissions statewide.
		B	<i>NEW: King County will continue to support and implement climate change goals consistent with the Washington State Growth Management Act.</i>
26	King County will be a leader in the development of federal policy solutions that slow, stop and reverse nationwide greenhouse gas emissions.	A	King County will promote and support long-term sustained reductions of greenhouse gas emissions to achieve climate stabilization.
		B	King County will promote and support market flexibility, such as "cap-and-trade" legislation.
		C	King County will promote and support standards and incentives for energy efficiency and renewable energy.
		D	King County will promote and support protection for adversely impacted communities from climate-related initiatives.

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Goal		Action	
27	King County will serve as an essential resource for local governments seeking to apply their unique influence on regional land development and infrastructure decisions that contribute to greenhouse gas emissions.	A	King County will serve as a model for local and regional action on greenhouse gas reduction strategies and provide expertise to other local and regional governments.
		B	King County will work with other local and regional governments to assess federal and state programs and their impact on greenhouse gas emissions and mitigation efforts.
28	King County will organize local, regional and national efforts to reduce greenhouse gas pollution.	A	King County will promote early initiatives that include binding commitments for greenhouse gas reduction, such as those embodied by the Chicago Climate Exchange.
		B	King County will assist in efforts to harmonize greenhouse gas accounting protocols across the nation.
		C	King County will organize efforts in the National Association of Counties and other national organizations to slow, stop, and reverse greenhouse gas emissions.
29	King County will be a primary leader in research, monitoring and use of climate science in public policy decisions.	A	King County will continue the work of its interdepartmental climate change adaptation team.
		B	King County will create a climate change technical advisory group within the climate change adaptation team.
		C	King County Water and Land Resources Division's Science, Monitoring and Data Management Section (Science Section) will place particular emphasis on understanding climate change impacts on environmental conditions in King County.
		D	King County Water and Land Resources Division's Science Section will provide climate change science to policymakers for consideration in policy and regulation.
		E	King County Water and Land Division's Science Section will develop additional research areas for its ambient monitoring program and collaborations with the Climate Impacts Group.

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Goal		Action	
30	King County departments will raise awareness about climate change impacts, adaptation and mitigation, and will collaborate interdepartmentally, with climate science experts, other agencies and other governments to adapt to climate change.	A	King County's climate change adaptation team will create a climate change outreach database to link appropriate King County experts to speaking engagements on climate change adaptation.
		B	King County departments will invest in education and outreach strategies to raise awareness and build engagement on adapting to climate change impacts in the region.
		C	The King County climate change adaptation team will provide information and resources about the development and implementation of this plan to other governments across the United States and worldwide.
31	King County will raise awareness with the public and other critical stakeholders on progress in climate change adaptation.	A	
32	Seattle - King County Public Health and other King County departments will be leaders in protecting public health from climate change impacts.	A	Seattle – King County Public Health will seek collaboration with the academic community, public agencies, private sector, and non-profits to share information and enhance understanding and visibility of climate change impacts to public health.
		B	Seattle -- King County Public Health will convene an internal departmental group to increase understanding about climate change impacts to public health.
		C	Seattle – King County Public Health will continue to work with other departments to develop proactive strategies to reduce known public health risks of climate change
33	King County will help the region to understand, limit the risks and minimize damage of natural hazards associated with climate change impacts.	A	King County will continue to analyze the potential impacts of climate change on natural hazards, and will update emergency plans and activities to respond appropriately to projected changes.
34	King County plans will guide the region to build preparedness for climate change impacts into all major investments in land and infrastructure.	A	King County's interdepartmental climate change adaptation team will support review of all King County plans, policies and investments, with information about predicted climate change impacts.

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Goal		Action	
35	King County will help the region to understand and reduce risks of fall and winter flooding associated with climate change impacts.	A	King County will implement the adopted 2006 King County Flood Hazard Management Plan, work to create a Flood Control Zone District by June 1, 2007, and work to establish a countywide fee for funding of necessary investments in the areas that are most vulnerable to increased fall and winter flooding.
		B	The King County River and Floodplain Management Program will work with King County departments to identify future flooding impacts to areas covered by plans and programs.
		C	King County will track and collaborate with local climate change researchers to better understand the effects of climate change upon fall and winter precipitation patterns.
36	King County will help the region to understand and reduce risks of possible coastal flooding associated with climate change impacts.	A	King County will collaborate with climate scientists and the Federal Emergency Management Agency to evaluate and plan for the potential impacts of coastal flooding associated with sea level rise.
37	King County will adapt its operation and maintenance of parks and trails to climate change impacts, in the most cost-effective way possible.	A	King County will identify projected climate change impacts to parks and trails, and will incorporate climate change considerations into the Parks Division maintenance plan.
38	King County will promote understanding of the value of green building practices to continued resilience of buildings and health of occupants to climate change impacts.	A	King County departments that manage capital projects and/or buildings will incorporate climate change information on the adaptive benefits of green building into plans, policies and codes.
		B	King County Department of Natural Resources and Parks Solid Waste Division will provide green building outreach and technical assistance to the building industry and county residents, as a solution to adapt to projected climate change impacts.
39	King County Historic Preservation Program will identify, preserve and protect significant historic and archaeological properties in the region that are vulnerable to climate change impacts, in order to promote community, economic, and cultural development.	A	King County Historic Preservation Program will identify cultural resources such as historic buildings, cultural properties and archaeological sites that are vulnerable to damage caused by climate change impacts.
		B	King County Historic Preservation Program will work to raise awareness of the need for protection of cultural resources such as historic buildings, cultural properties and archaeological sites from damage caused by climate change impacts such as flooding, erosion and storm events.

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Goal		Action	
40	King County will protect the integrity and safe operation of regional transportation infrastructure from climate change impacts.	A	King County Road Services Division will incorporate climate change impacts information into construction, operations and maintenance of infrastructure projects.
		B	King County climate change technical advisory subgroup will train Road Services Division staff in climate change impacts information and updates.
41	King County will work to understand and share information about climate change impacts to safe and reliable drinking water supplies and protection of fish and wildlife habitat conditions.	A	King County will develop a workgroup within the Department of Natural Resources and Parks to address climate change impacts to instream flows.
		B	King County will work with state, regional and local governments and leaders to address concerns of climate change impacts to safe and reliable drinking water supply and protection of fish and wildlife habitat conditions.
42	King County will work to ensure coordination of all elements of the region's water management program relating to water supply and quality, fish habitat, wastewater and surface water, and work to ensure that related activities account for projected climate change impacts.	A	King County will work with state, regional and local governments and leaders to promote an ethic of water use efficiency and conservation across the region.
		B	King County will promote water supply management structures that support resilience to climate change.
		C	King County will incorporate known climate change impacts information into documents of the Regional Water Supply Planning Process, as well as other existing King County plans related to water availability and quality.
43	To promote regional water supply resilience to climate change, King County will maximize development and use of reclaimed water produced from the wastewater system, and will explore other water reuse approaches and applications.	A	King County will produce and promote the use of reclaimed water that can be used for industrial and irrigation purposes to help offset the potential impacts of climate change on summer streamflows and water supplies.
		B	King County will inventory all non-potable uses of water in the region for potential substitution by reclaimed water.
		C	In 2007, King County will develop a Reclaimed Water Feasibility Study to inform decision makers of the current and possible future uses of reclaimed water, and discuss key considerations in developing a successful program and projects (such as revenue sources and pricing policies).
		D	King County will work with state, regional and local governments to expand the use of reclaimed water, as a measure to reduce stresses on freshwater and marine waters and help achieve recovery of a healthy Puget Sound.

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Goal		Action	
44	King County will support operational resilience of wastewater treatment to climate change impacts in the most cost-effective way possible.	A	King County Wastewater Treatment Division will collaborate with climate science experts and regional partners to understand and evaluate climate change information, and to incorporate these into planning for future wastewater treatment investments.
		B	King County Wastewater Treatment Division will develop strategies to deal with possible increases in combined sewer overflows and inflow and infiltration events as a result of increased fall and winter flooding associated with climate change.
45	King County will support operational resilience of stormwater management to climate change impacts in the most cost-effective way possible.	A	King County will expand its efforts to improve stormwater management in case of increased fall and winter flooding and will make provisions for other climate change impacts, to the extent practical.
		B	King County will contribute knowledge and information about climate change impacts to stormwater runoff in its partnerships to keep regional waters clean.
46	King County will help the region to ensure regional freshwater quality for drinking, irrigation and fish and wildlife.	A	The proposed climate change technical advisory group of King County's climate change adaptation team will continue to monitor and develop research on climate change impacts to water quality in lakes and rivers.
		B	Based on the research of the climate change technical advisory group, King County departments will work with other public agencies to address concerns of climate change impacts to water quality.
47	King County will take steps necessary to limit financial damage and economic consequences of climate change to the region.	A	King County will continue to evaluate potential impacts of climate change on government operations and the region, and will disclose results to residents, businesses and partner agencies.
		B	<i>NEW: King County will foster the regional development of a green job training programs and the development of a green workforce, including strategies for economically disadvantaged communities to have access to economic opportunities associated with climate change mitigation and adaptation strategies</i>

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Goal		Action	
48	King County will consider climate change impacts in its efforts to maintain healthy, resilient forests and a productive forestry economy.	A	King County will continue to build expertise on the climate change impacts to forest health and forestry.
		B	King County will continue to work with its partners to provide assistance, education and planning resources to forest landowners and communities about climate change impacts to forests.
		C	King County will work with federal, state and local governments to explore the possibility of developing a multi-agency partnership to raise awareness about climate change impacts on the region's forests, to share technical information, and to actively manage to improve forest health and resiliency.
49	King County will promote understanding of the value of agriculture and a healthy local agricultural economy for maintaining regional resilience to climate change impacts, and will consider climate change impacts in its efforts to maintain healthy productive agriculture lands and a vibrant agricultural economy,	A	King County will raise consumer awareness about the value of purchasing locally-produced food, and will continue to support programs that build a robust local food network.
		B	King County will continue to support biofuel development by the region's agricultural economy, as a measure to build regional climate change resilience.
		C	King County will collaborate with the Climate Impacts Group, Washington State University Extension, public agencies, private sector and non-profits to develop research on climate change impacts to agriculture, and will work to educate farmers about these impacts.
		D	King County will continue to collaborate with the academic community, public agencies, private sector and non-profits to develop strategies to address climate change impacts to agricultural health.
50	King County will be a leader in developing new solutions for the region's energy supply to be resilient to climate change impacts.	A	King County will continue to develop expertise in the projected climate change impacts to regional energy supply.
51	King County will work to support the resilience of salmon, fish, wildlife, habitat conditions and biodiversity to climate change impacts.	A	King County will collaborate with regional climate scientists and experts, in order to increase knowledge of current and projected climate change impacts to salmon, wildlife and biodiversity.
		B	King County will evaluate its existing ambient monitoring program to determine whether additional biodiversity monitoring will be needed as new climate change information emerges.
		C	King County will work to incorporate predicted climate change impacts into King County salmon recovery plans, programs and activities.

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<u>Goal</u>		Action	
52	King County will protect the unique, productive, and diverse marine environment of the region from climate change impacts.	A	King County will help the region to understand and adapt to predicted climate change impacts to marine waters.
53	King County will track progress on climate change mitigation and adaptation by collaborating on measurement with other local, regional and national stakeholders and experts.	A	King County will complete regular updates to its operational greenhouse gas emissions inventory, work to achieve its Chicago Climate Exchange operational reduction target, and work collaboratively to achieve regional and state reduction targets outlined in this plan.
		B	In 2007, King County will identify measures by which to track progress on adaptation and resilience to climate change impacts across the areas detailed in this plan.

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Resources

This section provides links to policies, programs, press releases and other resources related to the actions and issues described in this report.

2007 King County Climate Plan

<http://www.metrokc.gov/exec/news/2007/pdf/ClimatePlan.pdf>

Greenhouse Gas Accountability and Limits

Chicago Climate Exchange

<http://www.chicagoclimateexchange.com/>

Executive Order on Renewable Energy

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put76aeo.aspx>

Transportation Choices

King County Metro Transit Trip Planner (for individuals)

<http://tripplanner.metrokc.gov/>

Commute Trip Reduction

<http://www.metrokc.gov/kcdot/alts/employer/>

InMotion

<http://www.metrokc.gov/kcdot/transit/inmotion/>

Transit Now

<http://www.metrokc.gov/kcdot/transitnow/>

Land Use, Building Design and Materials

King County Comprehensive Plan

<http://www.metrokc.gov/permits/codes/CompPlan/>

Executive Order on Land Use Strategies for Global Warming Preparedness

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put78aeo.aspx>

Green Building Ordinance

http://www.metrokc.gov/dnrp/swd/about/green-building/team/documents/Ordinance_15118.pdf

King County GreenTools program

<http://www.metrokc.gov/dnrp/swd/greenbuilding/program/toolkit.asp>

King County Healthscape program

<http://www.metrokc.gov/healthscape/>

Executive Order on Evaluating Climate Change Impacts through SEPA

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put7101aeo.aspx>

Executive Order on Environmental Management Strategies for Global Warming Preparedness

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put77aeo.aspx>

King County Environmental Purchasing Program

<http://www.metrokc.gov/procure/green/>

King County EcoConsumer

<http://www.metrokc.gov/dnrp/swd/ecoconsumer/>

Puget Sound Fresh and Community-Supported Agriculture

<http://www.pugetsoundfresh.org/eatlocal/>

Energy Conservation, Clean Energy and Clean Fuels

Executive Order on Renewable Energy

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put76aeo.aspx>

Executive Order on Global Warming Preparedness (for Transportation)

<http://www.kingcounty.gov/operations/policies/executive/utilitiesaeo/put75aeo.aspx>

Puget Sound Regional Green Fleet Initiative Statement of Principles

<http://www.metrokc.gov/exec/cleanvehiclesnow/principles.aspx>

Climate Change Preparedness and Adaptation

Preparing for Climate Change: A Guidebook for Local, Regional and State Governments

<http://www.cses.washington.edu/cig/fpt/planning/guidebook/gateway.php>

King County Flood Hazard Management Plan

<http://dnr.metrokc.gov/wlr/flood/fhmp/index.htm>

King County Flood Control Zoning District

<http://www.metrokc.gov/dnrp/wlr/flood/flood-control-zone-district/default.aspx>

King County Reclaimed Water Program

<http://dnr.metrokc.gov/wtd/reuse/>

Climate Impacts Group at the University of Washington

<http://www.cses.washington.edu/cig/>